# SUBCHAPTER I—SOLID WASTES

## PART 240—GUIDELINES FOR THE THERMAL PROCESSING OF SOLID WASTES

### Subpart A—General Provisions



### Subpart B—Requirements and Recommended Procedures



AUTHORITY: Sec. 209(a), Solid Waste Disposal Act of 1965 (Pub. L. 89–272); as amended by the Resource Recovery Act of 1970 (Pub. L. 91–512).

SOURCE: 39 FR 29329, Aug. 14, 1974, unless otherwise noted.

## Subpart A—General Provisions

### § 240.100 Scope.

(a) The prescribed guidelines are applicable to thermal processing facilities designed to process or which are processing 50 tons or more per day of municipal-type solid wastes. The application of this capacity criterion will be interpreted to mean any facility designed to process or actually processing 50/24 tons or more per hour. However, the guidelines do not apply to hazardous, agricultural, and mining wastes because of the lack of sufficient information upon which to base recommended procedures.

(b) The requirement sections contained herein delineate minimum levels of performance required of any solid waste thermal processing operation. The recommended procedures sections are presented to suggest preferred methods by which the objectives of the requirements can be realized. The recommended procedures are based on the practice of incineration at large facilities (50 tons per day or more) processing municipal solid waste. If techniques other than the recommended procedures are used or wastes other than municipal wastes are processed, it is the obligation of the facility's owner and operator to demonstrate to the responsible agency in advance by means of engineering calculations, pilot plant

data, etc., that the techniques employed will satisfy the requirements.

(c) Thermal processing residue must be disposed of in an environmentally acceptable manner. Where a land disposal facility is employed, it must be in accordance with the Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes for both residues from the thermal processing operation and those non-hazardous wastes which cannot be thermally processed for reasons of health, safety, or technological limitation.

(d) Pursuant to section 211 of the Solid Waste Disposal Act, as amended, these guidelines are mandatory for Federal agencies. In addition, they are recommended to State, interstate, regional, and local government agencies for use in their activities.

(e) The guidelines are intended to apply equally to all solid waste generated by Federal agencies, regardless of whether processed or disposed of on or off Federal property; and solid waste generated by non-Federal entities, but processed or disposed of on Federal property. However, in the case of many Federal facilities such as Post Offices, military recruiting stations, and other offices, local community solid waste processing and disposal facilities are utilized, and processing and disposal is not within the management control of the Federal agency. Thus, implementation of the guidelines can be expected only in those situations where the Federal agency is able to exercise direct management control over the processing and disposal operations. However, every effort must be made by the responsible agency, where offsite facilities are utilized, to attain processing and disposal facilities that are in compliance with the guidelines. Where non-Federal generated solid waste is processed and disposed of on Federal land and/or facilities, those facilities and/or sites must be in compliance with these guidelines. Determination of compliance to meet the requirements of the guidelines rests with the responsible agency, and they have the authority to determine how such compliance may occur.

### § 240.101 Definitions.

As used in these guidelines:

(a) *Air*: *Overfire air* means air, under control as to quantity and direction, introduced above or beyond a fuel bed by induced or forced draft. ''Underfire air'' means any forced or induced air, under control as to quantity and direction, that is supplied from beneath and which passes through the solid wastes fuel bed.

(b) *Bottom ash* means the solid material that remains on a hearth or falls off the grate after thermal processing is complete.

(c) *Combustibles* means materials that can be ignited at a specific temperature in the presence of air to release heat energy.

(d) *Design capacity* means the weight of solid waste of a specified gross calorific value that a thermal processing facility is designed to process in 24 hours of continuous operation; usually expressed in tons per day.

(e) *Discharge* means water-borne pollutants released to a receiving stream directly or indirectly or to a sewerage system.

(f) *Emission* means gas-borne pollutants released to the atmosphere.

(g) *Facility* means all thermal processing equipment, buildings, and grounds at a specific site.

(h) *Fly ash* means suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion.

(i) *Free moisture* means liquid that will drain freely by gravity from solid materials.

(j) *Furnace* means the chambers of the combustion train where drying, ignition, and combustion of waste material and evolved gases occur.

(k) *Grate siftings* means the materials that fall from the solid waste fuel bed through the grate openings.

(l) *Gross calorific value* means heat liberated when waste is burned completely and the products of combustion are cooled to the initial temperature of the waste. Usually expressed in British thermal units per pound.

(m) *Hazardous waste* means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable or persistent in nature or because they

can be biologically magnified, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects.

(n) *Incineration* means the controlled process which combustible solid, liquid, or gaseous wastes are burned and changed into noncombustible gases.

(o) *Incinerator* means a facility consisting of one or more furnaces in which wastes are burned.

(p) *Infectious waste* means: (1) Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(q) *Municipal solid wastes* means normally, residential and commercial solid wastes generated within a community.

(r) *Open burning* means burning of solid wastes in the open, such as in an open dump.

(s) *Open dump* means a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers.

(t) *Plans* means reports and drawings, including a narrative operating description, prepared to describe the facility and its proposed operation.

(u) *Residue* means all the solids that remain after completion of thermal processing, including bottom ash, fly ash, and grate siftings.

(v) *Responsible agency* means the organizational element that has the legal duty to ensure that owners, operators, or users of facilities comply with these guidelines.

(w) *Sanitary landfill* means a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day.

(x) *Sludge* means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(y) *Solid wastes* means garbage, refuse, sludges, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants.

(z) *Special wastes* means nonhazardous solid wastes requiring handling other than that normally used for municipal solid waste.

(aa) *Thermal processing* means processing of waste material by means of heat.

(bb) *Vector* means a carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another.

## Subpart B—Requirements and Recommended Procedures

### § 240.200 Solid wastes accepted.

### § 240.200–1 Requirement.

In consultation with the responsible agencies, the owner/operator shall determine what wastes shall be accepted and shall identify any special handling required. In general, only wastes for which the facility has been specifically designed shall be accepted; however, other wastes may be accepted if it has been demonstrated to the responsible agency that they can be satisfactorily

processed within the design capability of the facility or after appropriate facility modifications.

### § 240.200–2 Recommended procedures: Design.

(a) In addition to the residential and commercial wastes normally processed at municipal-scale incinerators, certain special wastes might be considered for processing. These include: Certain bulky wastes (e.g., combustible demolition and construction debris, tree stumps, large timbers, furniture, and major appliances), digested and dewatered sludges from waste water treatment facilities, raw sewage sludges, and septic tank pumpings.

(b) If the facility is designed to handle special wastes, special areas should be provided where appropriate for storage while they await processing.

### § 240.200–3 Recommended procedures: Operations.

(a) Storage areas for special wastes should be clearly marked.

(b) Facility personnel should be thoroughly trained in any unusual handling required by acceptance of Special Wastes.

## § 240.201 Solid wastes excluded.

### § 240.201–1 Requirement.

Using information provided to them by the waste generator/owner, the responsible agency and the facility owner/operator shall jointly determine specific wastes to be excluded and shall identify them in the plans. The generator/owner of excluded wastes shall consult with the responsible agency in determining an alternative method of disposal for excluded wastes. The criteria used in considering whether a waste is unacceptable shall include the facility's capabilities, alternative methods available, the chemical and biological characteristics of the waste, environmental and health effects, and the safety of personnel. Disposal of pesticides and pesticide containers shall be consistent with the Federal Environmental Pesticides Control Act of 1972 (Pub. L. 92–516) and recommended procedures promulgated thereunder.

### § 240.201–2 Recommended procedures: Design.

(a) Provision for storing, handling, and removing hazardous or excluded wastes inadvertently left at the facility should be considered in design.

(b) Examples of wastes which should be considered for exclusion from the facility include: Hazardous wastes, very large carcasses, automobile bodies, dewatered sludges from water treatment plants, and industrial process wastes.

### § 240.201–3 Recommended procedures: Operations.

(a) Regular users of the facility should be given a list of excluded materials. The list should also be displayed prominently at the facility entrance. If a regular user persists in making unacceptable deliveries, he should be barred from the installation and reported to the responsible agency.

(b) The operating plan should specify the procedures and precautions to be taken if unacceptable wastes are delivered to the facility or are improperly left there. Operating personnel should be thoroughly trained in such procedures.

## § 240.202 Site selection.

### § 240.202–1 Requirement.

Site selection and utilization shall be consistent with public health and welfare, and air and water quality standards and adaptable to appropriate land-use plans.

### § 240.202–2 Recommended procedures: Design.

(a) Whenever possible, thermal processing facilities should be located in areas zoned for industrial use and having adequate utilities to serve the facility.

(b) The site should be accessible by permanent roads leading from the public road system.

(c) Environmental factors, climatological conditions, and socioeconomic factors should be given full consideration as selection criteria.

### § 240.202–3 Recommended procedures: Operations.

Not applicable.

### § 240.203 General design.

### § 240.203–1 Requirement.

A plan for the design of new facilities or modifications to existing facilities shall be prepared or approved by a professional engineer. A list of major considerations and the rationale for the decision on each consideration shall be approved by the responsible agency prior to authorization for construction. This information shall remain available for review.

### § 240.203–2 Recommended procedures: Design.

(a) The types, amounts (by weight and volume), and characteristics of all solid wastes expected to be processed should be determined by survey and analysis. The gross calorific value of the solid wastes to be processed should be determined to serve as a basis for design.

(b) Resource recovery in the form of heat utilization or direct recovery of materials should be considered in the design.

(c) The facility should be designed to be compatible with the surrounding area, easy to maintain, and consistent with the land use of the area.

(d) Employee convenience facilities and plant maintenance facilities should be provided. Adequate lighting should be provided throughout the facility.

(e) The corrosive and erosive action of once-through and recirculated process waters should be controlled either by treating them or by using materials capable of withstanding the adverse effects of the waters.

(f) Facility design capacity should consider such items as waste quantity and characteristics, variations in waste generation, equipment downtime, and availability of alternate storage, processing, or disposal capability.

(g) Facility systems and subsystems should be designed to assure standby capability in the event of breakdown. Provision for standby water and power should also be considered.

(h) Instrumentation should be provided to determine such factors as: The weight of incoming and outgoing materials (the same scale system may be used for both); total combustion airflow rates; underfire and overfire airflows and the quantitative distribution of each; selected temperatures and pressures in the furnace, along gas passages, in the particulate collection device, and in the stack; electrical power and water consumption of critical units; and rate of operation. The smoke density, the concentration of carbon monoxide, or the concentration of hydrocarbons in the stack gases should be monitored. Measurement of the pH should be considered for effluent waters. Continuously recording instrumentation should be used as much as possible.

(i) Audible signals should be provided to alert operating personnel of critical operating unit malfunctions.

(j) Sampling capability should be designed into the facility so that each process stream can be sampled, and the utilities required to do so should be close at hand. The sampling sites should be so designed that personnel can sample safely without interfering with normal plant operations.

(k) A laboratory should be included in the design, or provision should be made for laboratory analyses to be performed by an outside source acceptable to the responsible agency.

### § 240.203–3 Recommended procedures: Operations.

Not applicable.

### § 240.204 Water quality.

### § 240.204–1 Requirement.

All waters discharged from the facility shall be sufficiently treated to meet the most stringent of applicable water quality standards, established in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended.

### § 240.204–2 Recommended procedures: Design.

(a) Effluent waters should not be discharged indiscriminately. Consideration should be given to onsite treatment of process and waste waters before discharge.

(b) Recirculation of process waters should be considered.

### § 240.204–3 Recommended procedures: Operations.

(a) When monitoring instrumentation indicates excessive discharge contamination, appropriate adjustments should be made to lower the concentrations to acceptable levels.

(b) In the event of an accidental spill, the local regulatory agency should be notified immediately.

## § 240.205 Air quality.

### § 240.205–1 Requirement.

Emissions shall not exceed applicable existing emission standards established by the U.S. Environmental Protection Agency (as published in parts 52, 60, 61 and 76 of this chapter) under the authority of the Clean Air Act, as amended, or State or local emission standards effective under that Act, if the latter are more stringent.

### § 240.205–2 Recommended procedures: Design.

(a) These requirements should be met by using appropriate air pollution control technology.

(b) All emissions, including dust from vents, should be controlled.

### § 240.205–3 Recommended procedures: Operations.

When monitoring instrumentation indicates excessive emissions, appropriate adjustments should be made to lower the emission to acceptable levels.

## § 240.206 Vectors.

### § 240.206–1 Requirement.

Conditions shall be maintained that are unfavorable for the harboring, feeding, and breeding of vectors.

### § 240.206–2 Recommended procedures: Design.

Thermal processing facilities should be designed for ease of cleaning. Areas favorable for breeding of vectors should be avoided.

### § 240.206–3 Recommended procedures: Operations.

(a) A housekeeping schedule should be established and maintained. As a minimum the schedule should provide for cleaning the tipping and residue areas as spillages occur, emptying the solid waste storage area at least weekly, and routinely cleaning the remainder of the facility.

(b) Solid waste and residue should not be allowed to accumulate at the facility for more than one week.

## § 240.207 Aesthetics.

### § 240.207–1 Requirement.

The incinerator facility shall be designed and operated at all times in an aesthetically acceptable manner.

### § 240.207–2 Recommended procedures: Design.

The facility should be designed so that it is physically attractive. The tipping, residue discharge, and waste salvage areas should be screened from public view, and the grounds should be landscaped.

### § 240.207–3 Recommended procedures: Operations.

(a) A routine housekeeping and litter removal schedule should be established and implemented so that the facility regularly presents a neat and clean appearance.

(b) Solid wastes that cannot be processed by the facility should be removed from the facility at least weekly. Open burning or open dumping of this material should be prohibited.

## § 240.208 Residue.

### § 240.208–1 Requirement.

Residue and other solid waste products resulting from a thermal process shall be disposed of in an environmentally acceptable manner. Where land disposal is employed, practices must be in conformance with the U.S. Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes. Unwanted residue materials remaining after the recovery operation shall be disposed of in a manner which protects the environment. Where land disposal is employed, practices must be in conformance with the U.S. Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes.

### § 240.208–2 Recommended procedures: Design.

Thermal processing facilities should be so designed as to allow for removal from the site of residue or other solids in a manner that protects the environment.

### § 240.208–3 Recommended procedures: Operations.

(a) The furnace operator should visually observe the quality of the bottom ash at least twice per shift and record in the operating log the estimated percentage of unburned combustibles.

(b) If residue or fly ash is collected in a wet condition, it should be drained of free moisture. Transportation of residue and fly ash should be by means that prevent the loads from shifting, falling, leaking, or blowing from the container.

## § 240.209 Safety.

### § 240.209–1 Requirement.

Incinerators shall be designed, operated, and maintained in a manner to protect the health and safety of personnel associated with the operation of the facility. Pertinent provisions of the Occupational Safety and Health Act of 1970 (Pub. L. 91–596) and regulations promulgated thereunder shall apply.

### § 240.209–2 Recommended procedures: Design.

(a) Attention should be given to the safety of operators and vehicles through the provision of safety devices.

(b) Fire control equipment should be provided.

(c) Methods and/or equipment for removal of an injured person from the storage pit should be available.

### § 240.209–3 Recommended procedures: Operations.

(a) Detailed procedures should be developed for operation during such emergency situations as power failure, air or water supply failure, equipment breakdowns, and fire. These procedures should be posted in prominent locations, implemented by the staff as required, and upgraded and revised periodically.

(b) Approved respirators or self-contained breathing apparatus should be available at convenient locations. Their use should be reviewed periodically with facility personnel. Information on this type equipment can be obtained from the Appalachian Laboratory for Occupational Respiratory Disease, National Institute for Occupational Safety and Health, Morgantown, W. Va.

(c) Training in first aid practices and emergency procedures should be given all personnel.

(d) Personal safety devices such as hard hats, gloves, safety glasses, and footwear should be provided for facility employees.

(e) If a regular user or employee persistently poses a safety hazard he should be barred from the facility and reported to the responsible agency.

## § 240.210 General operations.

### § 240.210–1 Requirement.

The thermal processing facility shall be operated and maintained in a manner that assures it will meet the design requirements. An operations manual describing the various tasks to be performed, operating procedures, and safety precautions for various areas of the facility shall be developed and shall be readily available for reference by plant personnel.

### § 240.210–2 Recommended procedures: Design.

Not applicable.

### § 240.210–3 Recommended procedures: Operations.

(a) The facility supervisor should be experienced in the operation of the type of facility designed or, in the case of an innovated design, be adequately trained by responsible personnel in the operation of the facility.

(b) Alternate and standby disposal and operating procedures should be established for implementation during emergencies, air pollution episodes, and shutdown periods.

(c) Upon completion of facility construction, provision should be made for instruction of the staff in proper operation and maintenance procedures.

(d) A routine maintenance schedule should be established and followed.

(e) As-built engineering drawings of the facility should be provided at the conclusion of construction of the facility. These should be updated to show modifications by the owner as changes are made and should be readily available. A schematic showing the relationships of the various subsystems should also be available.

(f) Key operational procedures should be prominently posted.

(g) Equipment manuals, catalogs, spare parts lists, and spare parts should be readily available at the facility.

(h) Training opportunities for facility operating personnel should be provided.

### § 240.211 Records.

### § 240.211–1 Requirement.

The owner/operator of the thermal processing facility shall provide records and monitoring data as required by the responsible agency.

### § 240.211–2 Recommended procedures: Design.

Continuously recording instrumentation should be used as much as possible.

### § 240.211–3 Recommended procedures: Operations.

(a) Extensive monitoring and recordkeeping should be practiced during the first 12 to 18 months of operation of a new or renovated facility, during periods of high air pollution, and during periods of upset conditions at the facility.

(b) During other periods of more normal operation of the facility, less extensive monitoring and record keeping may be practiced if approved by the responsible agency.

(c) Operating records should be kept in a daily log and should include as a minimum:

(1) The total weight and volume (truck capacities may be used for volume determination) of solid waste received during each shift, including the number of loads received, the ownership or specific identity of delivery vehicles, the source and nature of the solid wastes accepted.

(2) Furnace and combustion chamber temperatures recorded at least every 60 minutes and as changes are made, including explanations for prolonged, abnormally high and low temperatures.

(3) Rate of operation, such as grate speed.

(4) Overfire and underfire air volumes and pressure and distribution recorded at least every 60 minutes and as changes are made.

(5) Weights of bottom ash, grate siftings, and fly ash, individually or combined, recorded at intervals appropriate to normal facility operation.

(6) Estimated percentages of unburned material in the bottom ash.

(7) Water used on each shift for bottom ash quenching and scrubber operation. Representative samples of process waters should be collected and analyzed as recommended by the responsible agency.

(8) Power produced and utilized each shift. If steam is produced, quality, production totals and consumption rates should be recorded.

(9) Auxiliary fuel used each shift.

(10) Gross calorific value of daily representative samples of bottom ash, grate siftings, and fly ash. (Sampling time should be varied so that all shifts are monitored on a weekly basis.)

(11) Emission measurements and laboratory analyses required by the responsible agency.

(12) Complete records of monitoring instruments.

(13) Problems encountered and methods of solution.

(d) An annual report should be prepared which includes at least the following information:

(1) Minimum, average, and maximum daily volume and weight of waste received and processed, summarized on a monthly basis.

(2) A summary of the laboratory analyses including at least monthly averages.

(3) Number and qualifications of personnel in each job category; total manhours per week; number of State certified or licensed personnel; staffing deficiencies; and serious injuries, their cause and preventive measures instituted.

(4) An identification and brief discussion of major operational problems and solutions.

(5) Adequacy of operation and performance with regard to environmental requirements, the general level of housekeeping and maintenance, testing and reporting proficiency, and recommendations for corrective actions.

(6) A copy of all significant correspondence, reports, inspection reports, and any other communications from enforcement agencies.

(e) Methodology for evaluating the facility's performance should be developed. Evaluation procedures recommended by the U.S. Environmental Protection Agency should be used whenever possible (see bibliography).

APPENDIX TO PART 240—RECOMMENDED BIBLIOGRAPHY

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# PART 243—GUIDELINES FOR THE STORAGE AND COLLECTION OF RESIDENTIAL, COMMERCIAL, AND INSTITUTIONAL SOLID WASTE

### Subpart A—General Provisions



### Subpart B—Requirements and Recommended Procedures



AUTHORITY: Sec. 209(a) of the Solid Waste Disposal Act of 1965 (Pub. L. 89–272), as amended by the Resource Recovery Act of 1970 (Pub. L. 91–512).

SOURCE: 41 FR 6769, Feb. 13, 1976, unless otherwise noted.

## Subpart A—General Provisions

### § 243.100 Scope.

(a) These guidelines are promulgated in partial fulfillment of section 209(a) of the Solid Waste Disposal Act, as amended (Pub. L. 89–272).

(b) The guidelines apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Explicitly excluded are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.

(c) The ''Requirement'' sections contained herein delineate minimum levels of performance required of solid waste collection operations. Under section 211 of the Solid Waste Disposal Act, as amended, and Executive Order 11752, the ''Requirement'' sections of these guidelines are mandatory for Federal agencies. In addition, they are recommended to State, interstate, regional, and local governments for use in their activities.

(d) The ''Recommended procedures'' sections are presented to suggest additional actions or preferred methods by which the objectives of the requirements can be realized. The ''Recommended procedures'' are not mandatory for Federal agencies.

(e) The guidelines apply equally to Federal agencies generating solid waste whether the solid waste is actually collected by a Federally operated or non-Federally operated collection system, except in the case of isolated Federal facilities such as post offices, military recruiting stations, and other offices where local community solid waste collection systems are utilized, which are not within the managerial control of the Federal agency.

(f) The guidelines shall be implemented in those situations where the Federal agency is able to exercise direct managerial control over the collection system through operation of the system or by contracting for collection service. Where non-Federal collection systems are utilized, service contracts should require conformance with the guidelines requirements unless service meeting such requirements is not reasonably available. It is left to the head of the responsible agency to decide how the requirements of the guidelines will be met.

(g) The Environmental Protection Agency will give technical assistance and other guidance to Federal agencies when requested to do so under section 3(D)1 of Executive Order 11752.

(h) Within 1 year after the final promulgation of these guidelines, Federal agencies shall decide what actions shall be taken to adopt the requirements of these guidelines and shall, within 60 days of this decision, submit to the Administrator a schedule of such actions.

(i) Federal agencies that decide not to adopt the requirements contained herein, for whatever reason, shall make available to the Administrator a report of the analysis and rationale used in making that decision. The Administrator shall publish notice of availability of this report in the FEDERAL REGISTER. EPA considers the following reasons to be valid for purposes of noncompliance: costs so high as to render compliance economically impracticable, and the technical inhibitions to compliance specifically described in the guidelines.

(1) The following points are to be covered in the report.

(i) A description of the proposed or on-going practices which will not be in compliance with these guidelines. This statement should identify all agency facilities which will be affected by noncompliance including a brief description of how such facilities will be affected.

(ii) A description of the alternative actions considered with emphasis on those alternatives which, if taken, would be in compliance with these guidelines.

(iii) The rationale for the action chosen by the agency including technical data and policy considerations used in arriving at this decision.

In covering these points, agencies should make every effort to present the information succinctly in a form easily understood, but in sufficient detail so that the Administrator and the public may understand the factors influencing the decision not to adopt the requirements of these guidelines.

(2) The report shall be submitted to the Administrator as soon as possible after a final agency decision has been made not to adopt the requirements of these guidelines, but in no case later than 60 days after the final decision. The Administrator will indicate to the agency his concurrence/nonconcurrence with the agency's decision, including his reasons.

(3) Implementation of actions not in compliance with these guidelines shall be deferred, where feasible, in order to give the Administrator time to receive, analyze, and seek clarification of the required report.

(4) It is recommended that where the report on non-compliance concerns an action for which an Environmental Impact Statement (EIS) is required by the National Environmental Policy Act, that the report be circulated simultaneously with the EIS, since much of the information to satisfy the requirements of the report will be useful in the preparation of the EIS.

### § 243.101 Definitions.

As used in these guidelines:

(a) *Alley collection* means the collection of solid waste from containers placed adjacent to or in an alley.

(b) *Agricultural solid waste* means the solid waste that is generated by the rearing of animals, and the producing and harvesting of crops or trees.

(c) *Bulky waste* means large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes whose large size precludes or complicates their handling by normal solid wastes collection, processing, or disposal methods.

(d) *Carryout collection* means collection of solid waste from a storage area proximate to the dwelling unit(s) or establishment.

(e) *Collection* means the act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point.

(f) *Collection frequency* means the number of times collection is provided in a given period of time.

(g) *Commercial solid waste* means all types of solid wastes generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.

(h) *Compactor collection vehicle* means a vehicle with an enclosed body containing mechanical devices that convey solid waste into the main compartment of the body and compress it into a smaller volume of greater density.

(i) *Construction and demolition waste* means the waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings, and other structures.

(j) *Curb collection* means collection of solid waste placed adjacent to a street.

(k) *Federal facility* means any building, installation, structure, land, or public work owned by or leased to the Federal Government. Ships at sea, aircraft in the air, land forces on maneuvers, and other mobile facilities are not considered ''Federal facilities'' for the purpose of these guidelines. United States Government installations located on foreign soil or on land outside the jurisdiction of the United States Government are not considered ''Federal facilities'' for the purpose of these guidelines.

(l) *Food waste* means the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage.

(m) *Generation* means the act or process of producing solid waste.

(n) *Hazardous waste* means a waste or combination of wastes of a solid, liquid, contained gaseous, or semisolid form which may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, taking into account the toxicity of such waste, its persistence and degradability in nature, its potential for accumulation or concentration in tissue, and other factors that may otherwise cause or contribute to adverse acute or chronic effects on the health of persons or other organisms.

(o) *Industrial solid waste* means the solid waste generated by industrial processes and manufacturing.

(p) *Infectious waste* means: (1) Equipment, instruments, utensils, and formites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes, such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto, and similar

disposable materials from outpatient areas and emergency rooms.

(q) *Institutional solid waste* means solid wastes generated by educational, health care, correctional, and other institutional facilities.

(r) *Mining wastes* means residues which result from the extraction of raw materials from the earth.

(s) *Residential solid waste* means the wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes.

(t) *Responsible agency* means the organizational element that has the legal duty to ensure compliance with these guidelines.

(u) *Rubbish* means a general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments, and institutions.

(v) *Satellite vehicle* means a small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it.

(w) *Scavenging* means the uncontrolled and unauthorized removal of materials at any point in the solid waste management system.

(x) *Sludge* means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved materials in irrigation return flows or other common water pollutants.

(y) *Solid waste* means garbage, refuse, sludges, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants. Unless specifically noted otherwise, the term ''solid waste'' as used in these guidelines shall not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.

(z) *Stationary compactor* means a powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation.

(aa) *Storage* means the interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal.

(bb) *Solid waste storage container* means a receptacle used for the temporary storage of solid waste while awaiting collection.

(cc) *Street wastes* means materials picked up by manual or mechanical sweepings of alleys, streets, and sidewalks; wastes from public waste receptacles; and material removed from catch basins.

(dd) *Transfer station* means a site at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile.

(ee) *Vector* means a carrier that is capable of transmitting a pathogen from one organism to another.

## Subpart B—Requirements and Recommended Procedures

### § 243.200 Storage.

### § 243.200–1 Requirement.

(a) All solid wastes (or materials which have been separated for the purpose of recycling) shall be stored in such a manner that they do not constitute a fire, health, or safety hazard or provide food or harborage for vectors, and shall be contained or bundled so as not to result in spillage. All solid waste containing food wastes shall be securely stored in covered or closed containers which are nonabsorbent, leakproof, durable, easily cleanable (if reusable), and designed for safe handling. Containers shall be of an adequate size and in sufficient numbers to contain all food wastes, rubbish, and ashes that a residence or other establishment generates in the period of time between collections. Containers shall be maintained in a clean condition so that they do not constitute a nuisance, and to retard the harborage, feeding, and breeding of vectors. When

serviced, storage containers should be emptied completely of all solid waste.

(b) Storage of bulky wastes shall include, but is not limited to, removing all doors from large household appliances and covering the item(s) to reduce the problems of an attractive nuisance, and the accumulation of solid waste and water in and around the bulky items.

(c) Reusable waste containers which are emptied manually shall not exceed 75 pounds (34.05 kg) when filled, and shall be capable of being serviced without the collector coming into physical contact with the solid waste.

(d) In the design of all buildings or other facilities which are constructed, modified, or leased after the effective date of these guidelines, there shall be provisions for storage in accordance with these guidelines which will accommodate the volume of solid waste anticipated, which may be easily cleaned and maintained, and which will allow for efficient, safe collection.

### § 243.200–2 Recommended procedures: Design.

(a) Reusable waste containers should be constructed of corrosion resistant metal or other material which will not absorb water, grease, or oil. The containers should be leakproof, including sides, seams, and bottoms, and be durable enough to withstand anticipated usage without rusting, cracking, or deforming in a manner that would impair serviceability. The interior of the container should be smooth without interior projections or rough seams which would make it difficult to clean or interfere with its emptying. The exterior of the container should be safe for handling with no cracks, holes, or jagged edges. Containers should be stored on a firm, level, well-drained surface which is large enough to accommodate all of the containers and which is maintained in a clean, spillage-free condition.

(1) Reusable waste containers which are emptied manually should have a capacity of no more than 35 gallons (132.51) in volume, unless they are mounted on casters and can be serviced by being rolled to the collection vehicle and tilted for emptying. The containers should be constructed with rounded edges and tapered sides with the larger diameter at the top of the container to facilitate discharge of the solid waste by gravity. Containers should have two handles or bails located directly opposite one another on the sides of the container. Containers should have covers which are tight-fitting to resist the intrusion of water and vectors, and should be equipped with a suitable handle. Containers should be designed so that they cannot be tipped over easily.

(2) Reusable waste containers which are emptied mechanically should be designed or equipped to prevent spillage or leakage during on-site storage, collection, or transport. The container should be easily cleanable and designed to allow easy access for depositing the waste and removing it by gravity or by mechanical means. The containers should be easily accessible to the collection vehicle in an area which can safely accommodate the dimensions and weight of the vehicle.

(b) Single-use plastic and paper bags should meet the National Sanitation Foundation Standard No. 31 for polyethylene refuse bags and Standard No. 32 for paper refuse bags, respectively. However, such bags do not need to have been certified by the National Sanitation Foundation. Single-use bags containing food wastes should be stored within the confines of a building or container between collection periods.

## § 243.201 Safety.

### § 243.201–1 Requirement.

Collection systems shall be operated in such a manner as to protect the health and safety of personnel associated with the operation.

### § 243.201–2 Recommended procedures: Operations.

(a) All solid waste collection personnel should receive instructions and training in safe container and waste handling techniques, and in the proper operation of collection equipment, such as those presented in *Operation Responsible: Safe Refuse Collection*.

(b) Personal protective equipment such as gloves, safety glasses, respirators, and footwear should be used

by collection employees, as appropriate. This equipment should meet the applicable provisions of the Occupational Safety and Health Administration Standards for Subpart I—Personal Protective Equipment (29 CFR 1910.132 through 1910.137).

(c) Scavenging should be prohibited at all times to avoid injury and to prevent interference with collection operations.

(d) When conducting carryout collection, a leakproof and puncture-proof carrying container should be used to minimize the potential for physical contact between the collector and the solid waste or the liquids which may derive from it.

### § 243.202 Collection equipment.

#### § 243.202–1 Requirement.

(a) All vehicles used for the collection and transportation of solid waste (or materials which have been separated for the purpose of recycling) which are considered to be operating in interstate or foreign commerce shall meet all applicable standards established by the Federal Government, including, but not limited to, Motor Carrier Safety Standards (49 CFR parts 390 through 396) and Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce (40 CFR part 202). Federally owned collection vehicles shall be operated in compliance with Federal Motor Vehicle Safety Standards (49 CFR parts 500 through 580).

(b) All vehicles used for the collection and transportation of solid waste (or materials which have been separated for the purpose of recycling) shall be enclosed or adequate provisions shall be made for suitable cover, so that while in transit there can be no spillage.

(c) The equipment used in the compaction, collection, and transportation of solid waste (or materials which have been separated for the purpose of recycling) shall be constructed, operated, and maintained in such a manner as to minimize health and safety hazards to solid waste management personnel and the public. This equipment shall be maintained in good condition and kept clean to prevent the propagation or attraction of vectors and the creation of nuisances.

(d) Collection equipment of the following types used for the collection, storage, and transportation of solid waste (or materials which have been separated for the purpose of recycling) shall meet the standards established by the American National Standards Institute (ANSI Z245.1, Safety Standards for Refuse Collection Equipment) as of the effective date(s) established in ANSI Z245.1:

(1) Rear-loading compaction equipment.

(2) Side-loading compaction equipment.

(3) Front-loading compaction equipment.

(4) Tilt-frame equipment.

(5) Hoist-type equipment.

(6) Satellite vehicles.

(7) Special collection compaction equipment.

(8) Stationary compaction equipment.

In the procurement of new collection equipment before the effective dates of ANSI Z245.1, equipment which meets the standards shall be obtained if available.

#### § 243.202–2 Recommended procedures: Design.

(a) Whenever possible, enclosed, metal, leak-resistant compactor vehicles should be used for the collection of solid wastes.

(b) Safety devices, including, but not limited to, the following should be provided on all collection vehicles:

(1) Exterior rear-view mirrors.

(2) Back-up lights.

(3) Four-way emergency flashers.

(4) Easily accessible first aid equipment.

(5) Easily accessible fire extinguisher.

(6) Audible reverse warning device.

(c) If crew members ride outside the cab of the collection vehicle for short trips the vehicle should be equipped with handholds and platforms big enough to safeguard against slipping.

(d) Vehicle size should take into consideration: Local weight and height limits for all roads over which the vehicle will travel; turning radius; and

loading height in the unloading position to insure overhead clearance in transfer stations, service buildings, incinerators, or other facilities.

(e) Engines which conserve fuel and minimize pollution should be used in collection vehicles to reduce fuel consumption and air pollution.

### § 243.202–3 Recommended procedures: Operations.

(a) Collection vehicles should be maintained and serviced according to manufacturers' recommendations, and receive periodic vehicle safety checks, including, but not limited to, inspection of brakes, windshield wipers, taillights, backup lights, audible reverse warning devices, tires, and hydraulic systems. Any irregularities should be repaired before the vehicle is used. Vehicles should also be cleaned thoroughly at least once a week.

(b) Solid waste should not be allowed to remain in collection vehicles over 24 hours and should only be left in a vehicle overnight when this practice does not constitute a fire, health, or safety hazard.

## § 243.203 Collection frequency.

### § 243.203–1 Requirement.

Solid wastes (or materials which have been separated for the purpose of recycling) shall be collected with frequency sufficient to inhibit the propagation or attraction of vectors and the creation of nuisances. Solid wastes which contain food wastes shall be collected at a minimum of once during each week. Bulky wastes shall be collected at a minimum of once every 3 months.

### § 243.203–2 Recommended procedures: Operations.

(a) The minimum collection frequency consistent with public health and safety should be adopted to minimize collection costs and fuel consumption. In establishing collection frequencies, generation rates, waste composition, and storage capacity should be taken into consideration.

(b) When solid wastes are separated at the point of storage into various categories for the purpose of resource recovery, a collection frequency should be designated for each waste category.

## § 243.204 Collection management.

### § 243.204–1 Requirement.

The collection of solid wastes (or materials which have been separated for the purpose of recycling) shall be conducted in a safe, efficient manner, strictly obeying all applicable traffic and other laws. The collection vehicle operator shall be responsible for immediately cleaning up all spillage caused by his operations, for protecting private and public property from damage resulting from his operations, and for creating no undue disturbance of the peace and quiet in residential areas in and through which he operates.

### § 243.204–2 Recommended procedures: Operations.

(a) Records should be maintained detailing all costs (capital, operating, and maintenance) associated with the collection system. These records should be used for scheduling maintenance and replacement, for budgeting, and for system evaluation and comparison.

(b) The collection system should be reviewed on a regular schedule to assure that environmentally adequate, economical, and efficient service is maintained.

(c) Solid waste collection systems should be operated in a manner designed to minimize fuel consumption, including, but not limited to, the following procedures.

(1) Collection vehicle routes should be designed to minimize driving distances and delays.

(2) Collection vehicles should receive regular tuneups, tires should be maintained at recommended pressures, and compaction equipment should be serviced regularly to achieve the most efficient compaction.

(3) Compactor trucks should be used to reduce the number of trips to the disposal site.

(4) When the distance or travel time from collection routes to disposal sites is great, transfer stations should be used when cost effective.

(5) Residential solid waste containers which are serviced manually should be

placed at the curb or alley for collection.

(6) For commercial wastes which do not contain food wastes, storage capacity should be increased in lieu of more frequent collection.

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# PART 244—SOLID WASTE MANAGEMENT GUIDELINES FOR BEVERAGE CONTAINERS

### Subpart A—General Provisions

Sec.



### Subpart B—Requirements



AUTHORITY: Secs. 1008 and 6004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6907, 6964).

SOURCE: 41 FR 41203, Sept. 21, 1976, unless otherwise noted.

## Subpart A—General Provisions

### § 244.100 Scope.

(a) The ''Requirement'' sections contained herein delineate minimum actions for Federal agencies for reducing beverage container waste.

(b) Section 211 of the Act and Executive Order 11752 make the ''Requirements'' section of the guidelines mandatory upon Federal agencies. They are recommended for adoption by State and local governments and private agencies.

(c) *Intent and Objectives.* (1) These Guidelines for Beverage Containers are intended to achieve a reduction in beverage container solid waste and litter, resulting in savings in waste collection and disposal costs to the Federal Government. They are also intended to

achieve the conservation and more efficient use of energy and material resources through the development of effective beverage distribution and container collection systems.

(2) The guidelines are intended to achieve these goals by making all beverage containers returnable and encouraging reuse of recycling of the returned containers. To accomplish the return of beverage containers, a deposit of at least five cents on each returnable beverage container is to be paid upon purchase by the consumer and refunded to the consumer when the empty container is returned to the dealer. This refund value provides a positive incentive for consumers to return the empty containers. Once containers are returned, nonrefillable containers can be recycled and refillable bottles can be reused.

(3) The minimum deposit of five cents has been chosen because it is deemed a large enough incentive to induce the return of most containers, and it is the most widely used deposit amount in present deposit systems. Because this action is intended to be compatible with present deposit systems, it is recommended that Federal facilities apply higher deposit levels in localities where higher levels are ordinarily used and lower deposit levels if the local area has an established return system with a minimum deposit level, for some or all beverage containers, of less than five cents.

(4) Final determination of how the requirements of the guidelines will be met rests with the head of each Federal agency.

(5) Federal facilities implementing the guidelines must charge refundable deposits on both refillable beverage containers and nonrefillable ones. Use of a refillable beverage container system will achieve the objectives of this guideline and will also most likely result in lower beverage prices for consumers. However, placing refundable deposits on nonrefillable containers, which are subsequently returned and recycled, also achieves the objectives of the guidelines.

(d) *Nonimplementation for Federal Facilities.* (1) The objectives of these guidelines are to reduce solid waste and litter and to conserve energy and materials through the use of a return system for beverage containers. In order to have a substantial impact on solid waste and litter created by beverage containers and to effect the concomitant energy and materials savings in a cost-effective manner, three conditions will be necessary: First, that consumers continue to purchase beverages from dealers at Federal facilities; second, that empty containers be returned and then reused or recycled; third, that the costs of implementation are not prohibitive. The head of each agency should consider these factors in order to make a determination regarding implementation of these guidelines.

(2) The Administrator recognizes that the requirements of these guidelines may not be practical at some Federal facilities due to geographic or logistic problems of a local nature. Further, he recognizes that the use of a returnable beverage container system will accomplish nothing if all reasonable efforts to implement such a system have failed to induce consumers to buy beverages in returnable containers or to return them when empty. When these situations persist, agencies may determine not to continue implementation of these guidelines.

(3) Federal agencies that make the determination not to use returnable containers shall provide to the Administrator the analysis and rationale used in making that determination as required by § 244.100(f)(3). The Administrator will publish notice of availability of this report in the FEDERAL REGISTER. The following conditions are considered to be valid reasons for not using returnable beverage containers.

(i) Situations in which, after a trial implementation, there is no alternative available that results in meeting the objectives of the guidelines in a cost effective manner. Examples of indications of this situation include, but are not limited to: (A) Data indicating a substantial and persistent reduction in beverage sales that is not directly attributable to any other cause; and (B) failure to establish a beverage container return rate that effectively achieves the objectives of these guidelines.

(ii) Situations in which no viable alternative can be found which avoids excessive, irrecoverable costs to the facility or the Agency. These conditions may prevail at either part or all of a facility. It is expected that facilities will use returnable beverage containers in those portions of their beverage distribution systems where it is effective to do so. However, it is recognized that in some situations, such as for unattended vending machines where it is impractical to establish refund locations, or in small remote outlets where the majority of consumers are transient, it may not be possible to use returnable containers effectively. The provisions for nonimplementation can be applied to those portions of a facility.

(e) The Environmental Protection Agency will render technical assistance and other guidance to Federal agencies when requested to do so pursuant to section 3(d)(1) of Executive Order 11752.

(f) *Reports*—(1) *Implementation Schedule Report.* This report is to advise the EPA of plans for the implementation of these guidelines. It is to be submitted to the Administrator within 60 days following an agency's determination to implement, and should include a list of planned implementation actions and a schedule indicating when those actions will be taken.

(2) [Reserved]

(3) *Nonimplementation Report.* Nonimplementation reports are to be submitted to the Administrator as soon as possible after a final agency determination has been made not to use returnable beverage containers but not later than sixty days after this determination. The Administrator will indicate to the reporting agency his concurrence or nonconcurrence with the agency's decision, including his reasons therefor. This concurrence or nonconcurrence is advisory.

Nonimplementation reports should include:

(i) A description of alternative actions considered or implemented, including those actions which, if taken or continued, would have involved a deposit or return system.

(ii) A description of ongoing actions that will be continued and actions taken or proposed that would preclude future implementation of a returnable beverage container system. This statement should identify all agency facilities or categories of facilities that will be affected.

(iii) An analysis in support of the determination not to implement a deposit system, including technical data, market studies, and policy considerations used in making that determination. If the determination not to implement is based on inability to achieve a cost-effective system, this analysis should include such things as sales volume, impact on total overhead costs, administrative costs, other costs of implementation, percentage of containers sold that are returned, solid waste and litter reduction, energy and materials saved, and retail prices (before and after implementation).

[41 FR 41203, Sept. 21, 1976, as amended at 47 FR 36602, Aug. 20, 1982]

### § 244.101 Definitions.

(a) *Beverage* means carbonated natural or mineral waters; soda water and similar carbonated soft drinks; and beer or other carbonated malt drinks in liquid form and intended for human consumption.

(b) *Beverage container* means an airtight container containing a beverage under pressure of carbonation. Cups and other open receptacles are specifically excluded from this definition.

(c) *Consumer* means any person who purchases a beverage in a beverage container for final use or consumption.

(d) *Dealer* means any person who engages in the sale of beverages in beverage containers to a consumer.

(e) *Deposit* means the sum paid to the dealer by the consumer when beverages are purchased in returnable beverage containers, and which is refunded when the beverage container is returned.

(f) *Distributor* means any person who engages in the sale of beverages, in beverage containers, to a dealer, including any manufacturer who engages in such sale.

(g) *Federal Agency* means any department, agency, establishment, or instrumentality of the executive branch of the United States Government.

(h) *Federal facility* means any building, installation, structure, land, or

public work owned by or leased to the Federal Government. Ships at sea, aircraft in the air, land forces on maneuvers, and other mobile facilities; and United States Government installations located on foreign soil or on land outside the jurisdiction of the United States Government are not considered ''Federal facilities'' for the purpose of these guidelines.

(i) *On-Premise Sales* means sales transactions in which beverages are purchased by a consumer for immediate consumption within the area under control of the dealer.

(j) *Recycling* means the process by which recovered materials are transformed into new products.

(k) *Refillable Beverage Container* means a beverage container that when returned to a distributor or bottler is refilled with a beverage and reused.

(l) *Refund* means the sum, equal to the deposit, that is given to the consumer or the dealer or both in exchange for empty returnable beverage containers.

(m) *Returnable Beverage Container* means a beverage container for which a deposit is paid upon purchase and for which a refund of equal value is payable upon return.

## Subpart B—Requirements

### § 244.200 Requirements.

### § 244.201 Use of returnable beverage containers.

(a) All beverages in beverage containers sold or offered for sale shall be sold in returnable beverage containers. On-premise sales are specifically excluded from this requirement provided that empty beverage containers are returned to the distributor for refilling, or are recycled, either by the dealer or by the distributor when markets for recyclable materials are available.

(b) The deposit shall be at least five (5) cents unless the local area has an established return system in operation with a lower minimum deposit level. In these specific areas, Federal facilities may adopt a minimum deposit equal to the local deposit level.

(c) A dealer shall accept from a consumer any empty beverage containers of the kind, size and brand sold by the dealer, and pay the consumer the refund value of the beverage container, provided the container is refillable or is labelled in accordance with § 244.202(a).

(d) The refund shall be provided at the place of sale whenever possible or as close to that place as practicable, and in any event, on the premises of the particular federal facility involved. Refund locations shall be conspicuously labelled as refund centers. If they are not in the immediate vicinity of the place of sale, notice of their location shall be prominently posted at that place of sale.

(e) A dealer shall not procure beverages in beverage containers from distributors who refuse to: Accept from the dealer any returnable beverage containers of the kind, size and brand sold by the distributor; pay to the dealer the refund value of the beverage containers; and reuse the returned containers or recycle them where markets for recyclable materials are available.

(f) Returned refillable beverage containers shall be returned to the distributor for refilling. Nonrefillable beverage containers shall be returned to the appropriate distributor or recycled, where markets for recyclable materials are available.

### § 244.202 Information.

(a) With the exception of refillable beverage containers, every returnable beverage container sold or offered for sale by a dealer shall clearly and conspicuously indicate, by embossing or by stamp, or by a label securely affixed to the beverage container, the refund value of the container and that the container is returnable.

(b) Dealers shall inform consumers that beverages are sold in returnable beverage containers by placing a sign, or a shelf label, or both, in close proximity to any sales display of beverages in returnable containers. That sign or label shall indicate that all containers are returnable, separately list the beverage price and deposit to be paid by the consumer, and shall indicate where the empty beverage containers may be returned for refund of the deposit.

### § 244.203 Implementation decisions and reporting.

Federal agencies are to determine whether or not to implement these guidelines by October 20, 1977. Reporting of that determination shall be in accordance with the following requirements:

(a) Federal agencies that plan to implement these guidelines shall report that decision to the Administrator in accordance with the procedures described in § 244.100(f)(1).

(b) Agencies that determine not to implement these guidelines shall provide to the Administrator a nonimplementation report in accordance with § 244.100(f)(3). This report shall include the reasons for nonimplementation, based on concepts presented in § 244.100(d).

[47 FR 36602, Aug. 20, 1982; 47 FR 41959, Sept. 23, 1982]

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# PART 245—PROMULGATION RESOURCE RECOVERY FACILITIES GUIDELINES

### Subpart A—General Provisions



### Subpart B—Requirements and Recommended Procedures



AUTHORITY: Secs. 1008 and 6004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6907, 6964).

SOURCE: 41 FR 41208, Sept. 21, 1976, unless otherwise noted.

## Subpart A—General Provisions

### § 245.100 Scope.

(a) These guidelines are applicable to the recovery of resources from residential, commercial, or institutional solid wastes.

(b) The ''Requirement'' sections contained herein delineate minimum actions for Federal agencies for planning and establishing resource recovery facilities. Pursuant to section 211 of the Solid Waste Disposal Act, as amended, and Executive Order 11752, the ''Requirement'' sections of this guideline are mandatory for Federal agencies. In addition, they are recommended to State, interstate, regional, and local governments for use in their activities.

(c) The ''Recommended Procedures'' sections are presented to suggest additional actions or preferred methods by which the objectives of the requirements can be realized. The ''Recommended Procedures'' are not mandatory for Federal agencies.

(d) These guidelines apply to all Federal agencies that have jurisdiction over any real property or facility the operation or administration of which involves such agency in residential, commercial or institutional solid wastes disposal activities either in-house or by contract. Federal land that is used solely for the disposal of non-Federal solid waste is not considered real property or a facility for the purpose of these guidelines.

(e) The Environment Protection Agency will render technical assistance and other guidance to Federal agencies when requested to do so pursuant to section 3(d)1 of Executive Order 11752.

(f) Within one year after the final promulgation of these guidelines, agencies shall make a determination as to what actions will be taken to establish a resource recovery facility in accordance with these guidelines and shall, within 60 days of such determination, submit to the Administrator a schedule of such actions.

(g) In order for the Administrator to establish the lead agency in each Standard Metropolitan Statistical Area (SMSA) as addressed in § 245.200–1(b), each Agency shall provide the Administrator within 60 days after the final promulgation of these guidelines the following information:

List of all real property or facilities by SMSA that the agency has jurisdiction over, the operation or administration of which involves such agency in residential, commercial or institutional solid wastes disposal activities, either in-house or by contract, in amounts of more than one ton of solid waste per day (equivalent to 260 tons or more annually) after implementation of other Federal guidelines for waste reduction and source separation and that amount of solid waste.

(h) Within 90 days after final promulgation of these guidelines, the Administrator will establish the lead agency in each SMSA.

(i) Federal agencies that make the determination not to establish or utilize a resource recovery facility shall make a report to the Administrator fully explaining that determination. The Administrator shall publish in the FEDERAL REGISTER notice of the availability of this report to the public. In making this determination, agencies

must consider energy conservation, environmental factors, and natural resource conservation as well as cost. Trade-offs between these factors must be analyzed prior to the decision not to establish or utilize a resource recovery facility. As all of these factors can be reduced to cost, the following are considered to be valid reasons for not establishing or utilizing a resource recovery facility when supported by individual facts and circumstances:

(1) Costs so high as to render establishing a resource recovery facility economically impracticable; or

(2) Inability to sell the recovered products due to lack of market.

(i) The report required by this section shall contain:

(A) A description of alternative actions considered with emphasis on those alternatives that involve resource recovery, and any actions that would preclude establishing or utilizing a resource recovery facility.

(B) A description of ongoing actions which will be continued and new actions taken or proposed. This statement should identify all agency facilities that will be affected by these actions including a brief description of how these facilities will be affected.

(C) An analysis of the action chosen by the agency including supporting technical data, market studies, and policy considerations so that the factors influencing the decision not to establish a resource recovery facility are clear.

(ii) The report required by this section shall be submitted to the Administrator as soon as possible after a final agency determination has been made not to establish or utilize a resource recovery facility, but in no case later than sixty days after such final determination. The Administrator shall indicate to the agency in writing his concurrence or disagreement with the agency's decision, including his reasons therefor.

(iii) Implementation of actions that would preclude establishing or utilizing a resource recovery facility shall be deferred for 60 days, from the Agency's receipt of the report required by § 245.100(g), in order to give the Administrator an opportunity to receive, analyze and seek clarification of the report.

(iv) It is recommended that where the report required by this section concerns an action for which an Environmental Impact Statement (EIS) is required by the National Environmental Policy Act, that the report be circulated together with the EIS.

### § 245.101 Definitions.

As used in these guidelines:

(a) *Commercial solid waste* means all types of solid waste generated by stores, offices, restaurants, warehouses, and other such non-manufacturing activities, and non-processing waste generated at industrial facilities such as office and packing wastes.

(b) *Disposal* means the collection, storage, treatment, utilization, processing, or final disposal of solid waste.

(c) *Facility* means any building, installation, structure, or public work owned by or leased to the Federal Government. Ships at sea, aircraft in the air, land forces on maneuvers, other mobile facilities, and U.S. Government installations located on foreign soil are not considered ''Federal facilities'' for the purpose of these guidelines.

(d) *Infectious waste* means: (1) Equipment, instruments, utensils, and fomites (any substance that may harbor or transmit pathogenic organisms) of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes, such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(e) *Institutional solid waste* means solid wastes originating from educational, health care, correctional, and other institutional facilities.

(f) *Pyrolytic gas and oil* means gas or liquid products that possess useable heating value that is recovered from the heating of organic material (such

as that found in solid waste), usually in an essentially oxygen-free atmosphere.

(g) *Recoverable resources* means materials that still have useful physical, chemical, or biological properties after serving their original purpose and can, therefore, be reused or recycled for the same or other purposes.

(h) *Recovery* means the process of obtaining materials or energy resources from solid waste.

(i) *Recycled material* means a material that is utilized in place of a primary, raw, or virgin material in manufacturing a product.

(j) *Recycling* means the process by which recovered materials are transformed into new products.

(k) *Residential solid waste* means the garbage, rubbish, trash, and other solid waste resulting from the normal activities of households.

(l) *Resource recovery facility* means any physical plant that processes residential, commercial, or institutional solid wastes biologically, chemically, or physically, and recovers useful products, such as shredded fuel, combustible oil or gas, steam, metal, glass, etc. for recycling.

(m) *Tons per day* means annual tonnage divided by 260 days.

## Subpart B—Requirements and Recommended Procedures

### § 245.200 Establishment or utilization of resource recovery facilities.

#### § 245.200–1 Requirements.

(a) A Federal agency that has jurisdiction over any real property or facility the operation or administration of which involves such agency in residential, commercial or institutional solid wastes disposal activities either in-house or by contract in amounts of 100 tons or more per day (equivalent to 26,000 tons or more annually) after implementation of other Federal guidelines for waste reduction and source separation shall establish or utilize resource recovery facilities to separate and recover materials or energy or both from such solid waste.

(b) If any one Federal agency within a Standard Metropolitan Statistical Area that has jurisdiction over any real property or facility the operation or administration of which involves such agency in residential, commercial, or institutional solid wastes disposal activities either in-house or by contract in amounts of 50 tons or more per day (equivalent to 13,000 tons or more annually) after implementation of other Federal guidelines for waste reduction and source separation, and if the combined total of these solid wastes for all Federal agencies within the SMSA is 100 tons or more per day (equivalent to 26,000 tons or more annually) after implementation of other Federal guidelines for waste reduction and source separation, all Federal agencies within the SMSA shall establish or utilize one or more resource recovery facilities to separate and recover materials or energy or both from this solid waste. The agency that has jurisdiction over the disposal of the largest quantity of residential, commercial, or institutional solid wastes in the SMSA shall be designated the lead agency by the Administrator of EPA in the resource recovery facility planning process. The lead agency shall be responsible for planning, organizing, and managing the joint resource recovery activities of the agencies in the SMSA and shall report the compliance decision of the agencies in the SMSA in accordance with §245.100 (f) or (i), as appropriate, in a consolidated report. All other agencies in the SMSA shall assist in planning such resource recovery activities.

(c) Agencies shall consult with appropriate State and local agencies, and with concerned local citizens and environmental groups prior to initiation of market analysis and facility design and construction to determine what effects the project might have on local, regional, and State solid waste management plans for the area and to determine the extent of prior resource recovery planning for the area. Resource recovery facilities established as a result of these guidelines shall be compatible with such plans.

(d) Resource recovery facilities established or utilized as a result of these guidelines shall be designed with a capacity sufficient to process at least all of the residential, commercial, or institutional solid wastes disposed of after

implementation of other Federal guidelines for waste reduction and source separation, by the agencies that have jurisdiction over the Federal facilities that will utilize the resource recovery facility.

(e) Resource recovery facilities established or utilized as a result of these guidelines shall be designed to process at least 65 percent by wet weight of the input solid waste into recycled material, fuel, or energy. Thus, the weight of the unmarketable residue shall be no more than 35 percent by wet weight of the input solid waste. If inability to meet the 65 percent criteria is based on circumstances as stated in §245.100(i) then the processing percentage shall be as great as practicable within those circumstances.

(f) An agency may determine, under §245.100(i) not to establish or utilize a resource recovery facility when after appropriate analysis it is determined that markets for recovered products are not available, or that the cost of the resource recovery system would be so high as to be economically impracticable.

[41 FR 41208, Sept. 21, 1976, as amended at 47 FR 36603, Aug. 20, 1982]

### § 245.200–2 Recommended procedures: Regionalization.

(a) Federal agencies that have jurisdiction over facilities within a geographical area should enter into joint resource recovery ventures among themselves and with nearby communities in order to maximize economies of scale.

(b) If a community near a Federal facility operates or is planning to construct a resource recovery facility, the Federal agency having jurisdiction over that facility should participate as appropriate relative to waste load in the financing, construction, and operation of that facility.

### § 245.200–3 Recommended procedures: Planning techniques.

Planning for the implementation of a resource recovery facility should be performed in a systematic manner. A series of reports have been prepared by the Agency's Office of Solid Waste Management Programs. The series, titled Resource Recovery Plant Implementation; Guides for Municipal Officials, should be used as an aid in the planning phase.

(a) Planning and Overview (SW–157.1) provides a framework for the overall planning phase.

(b) Preceding the selection of a specific resource recovery technology, an investigation of markets should be made. Markets (SE–157.3) lists the markets for the recovered materials and outlines steps to be taken to secure those markets.

(c) The various resource recovery methods are covered in Technologies (SW–157.2).

(d) The economic viability of a specific resource recovery facility should be determined only after all costs are accounted for as outlined in Accounting Format (SW–157.6).

(e) Other reports in this series are:

Financing SW–157.4
Procurement SW–157.5
Risks and Contracts SW–157.7
Further Assistance SW–157.8

These reports may be obtained from: Solid Waste Information Materials Control Section, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.

## PART 246—SOURCE SEPARATION FOR MATERIALS RECOVERY GUIDELINES

### Subpart A—General Provisions

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### Subpart B—Requirements and Recommended Procedures

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246.200–4 Recommended procedures: Levels of separation.
246.200–5 Recommended procedures: Methods of separation and collection.
246.200–6 Recommended procedures: Storage.
246.200–7 Recommended procedures: Transportation.

AUTHORITY: Secs. 1008 and 6004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6907, 6964).

SOURCE: 41 FR 16952, Apr. 23, 1976, unless otherwise noted.

## Subpart A—General Provisions

### § 246.100 Scope.

(a) These guidelines are applicable to the source separation of residential, commercial, and institutional solid wastes. Explicitly excluded are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; infectious wastes; classified waste.

(b) The ''Requirement'' sections contained herein delineate minimum actions for Federal agencies for the recovery of resources from solid waste through source separation. Pursuant to section 211 of the Solid Waste Disposal Act, as amended, and Executive Order 11752 section 4(a), the ''Requirement'' sections of these guidelines are mandatory for all Federal agencies that generate solid waste. In addition, they are recommended to State, interstate, regional, and local governments for use in their activities.

(c) The ''Recommended Procedures'' sections are presented to suggest actions or preferred methods by which the objectives of the requirements can be realized. The ''Recommended Procedures'' are not mandatory for Federal agencies.

(d) The Environmental Protection Agency will render technical assistance in the form of sample cost analysis formats, sample bid specifications, implementation guidance documents and other guidance to Federal agencies when requested to do so, pursuant to section 3(d)1 of Executive Order 11752.

(e) Within one year after the effective date of these guidelines, agencies shall make a final determination as to what actions shall be taken to adopt the requirements of these guidelines and shall, within two months of such determination, submit to the Administrator a schedule of such actions.

(f) Federal agencies that make the determination not to source separate as described in §§ 246.200–1, 246.201–1, and 246.202–1, for whatever reason, shall make available to the Administrator the analysis and rationale used in making that determination. The Administrator shall publish notice of the availability of this report to the general public in the FEDERAL REGISTER. The following are considered to be valid reasons for not source separating under individual facts and circumstances: inability to sell the recovered materials due to lack of market, and costs so unreasonably high as to render source separation for materials recovery economically impracticable.

(1) The following points are to be covered in the report:

(i) A description of alternative actions considered with emphasis on those alternatives which involve source separation for materials recovery.

(ii) A description of ongoing actions which will be continued and new actions taken or proposed. This statement should identify all agency facilities which will be affected by these actions including a brief description of how such facilities will be affected.

(iii) An analysis in support of the action chosen by the agency including technical data, market studies, and policy considerations used in arriving at such a determination.

In covering the points above, agencies should make every effort to present information succinctly in a form easily understood, but in sufficient detail so that the factors influencing the decision not to source separate for materials recovery are clear.

(2) The above report shall be submitted to the Administrator as soon as possible after a final agency determination has been made not to adopt the requirements of these guidelines, but in no case later than sixty days after such final determination. The Administrator will indicate to the agency his concurrence/nonconcurrence with the agency's decision, including his reason therefor.

(3) Implementation of actions that would preclude source separation for materials recovery shall be deferred, for sixty days where feasible, in order to give the Administrator an opportunity to receive, analyze and seek clarification of the above required report.

(4) It is recommended that where the report required by §246.100(f) concerns an action for which an Environmental Impact Statement (EIS) is required by the National Environmental Policy Act, that the report be circulated together with the EIS.

(g) The report required under §246.100(e) and (f) shall be made on forms to be prescribed by the Administrator by notice in the FEDERAL REGISTER.

[41 FR 16952, Apr. 23, 1976, as amended at 47 FR 36603, Aug. 20, 1982]

### §246.101 Definitions.

As used in these guidelines:

(a) *Agricultural solid waste* means the solid waste that is generated by the rearing of animals, and the producing and harvesting of crops or trees.

(b) *Baler* means a machine used to compress solid wastes, primary materials, or recoverable materials, with or without binding, to a density or from which will support handling and transportation as a material unit rather than requiring a disposable or reuseable container. This specifically excludes briquetters and stationary compaction equipment which is used to compact materials into disposable or reuseable containers.

(c) *Bulk container* means a large container that can either be pulled or lifted mechanically onto a service vehicle or emptied mechanically into a service vehicle.

(d) *Classified Waste* means waste material that has been given security classification in accordance with 50 U.S.C. 401 and Executive Order 11652.

(e) *Collection* means the act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point.

(f) *Commercial establishment* means stores, offices, restaurants, warehouses and other non-manufacturing activities.

(g) *Commercial solid waste* means all types of solid wastes generated by stores, offices, restaurants, warehouses and other non-manufacturing activities, and non-processing wastes such as office and packing wastes generated at industrial facilities.

(h) *Construction and demolition waste* means the waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings and other structures.

(i) *Compartmentalized vehicle* means a collection vehicle which has two or more compartments for placement of solid wastes or recyclable materials. The compartments may be within the main truck body or on the outside of that body as in the form of metal racks.

(j) *Corrugated container waste* means discarded corrugated boxes.

(k) *Corrugated box* means a container for goods which is composed of an inner

fluting of material (corrugating medium) and one or two outer liners of material (linerboard).

(l) *Federal facility* means any building, installation, structure, land, or public work owned by or leased to the Federal Government. Ships at sea, aircraft in the air, land forces on maneuvers, and other mobile facilities are not considered Federal facilities for the purpose of these guidelines. United States Government installations located on foreign soil or on land outside the jurisdiction of the United States Government are not considered Federal facilities for the purpose of these guidelines.

(m) *Food waste* means the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods; commonly called garbage.

(n) *Generation* means the act or process of producing solid waste.

(o) *High-grade paper* means letterhead, dry copy papers, miscellaneous business forms, stationery, typing paper, tablet sheets, and computer printout paper and cards, commonly sold as ''white ledger,'' ''computer printout'' and ''tab card'' grade by the wastepaper industry.

(p) *Industrial solid waste* means the solid waste generated by industrial processes and manufacturing.

(q) *Infectious waste* means: (1) Equipment, instruments, utensils, and fomites (any substance that may harbor or transmit pathogenic organisms) of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies; (2) laboratory wastes, such as pathological specimens (e.g. all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites attendant thereto; (3) surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

(r) *Institutional solid waste* means solid wastes generated by educational, health care, correctional and other institutional facilities.

(s) *Mining wastes* means residues which result from the extraction of raw materials from the earth.

(t) *Post-consumer waste* (PCW) means a material or product that has served its intended use and has been discarded for disposal or recovery after passing through the hands of a final consumer.

(u) *Recoverable resources* means materials that still have useful physical, chemical, or biological properties after serving their original purpose and can, therefore, be reused or recycled for the same or other purposes.

(v) *Recovery* means the process of obtaining materials or energy resources from solid waste.

(w) *Recycled material* means a material that is used in place of a primary, raw or virgin material in manufacturing a product.

(x) *Recycling* means the process by which recovered materials are transformed into new products.

(y) *Residential solid waste* means the wastes generated by the normal activities of households, including but not limited to, food wastes, rubbish, ashes, and bulky wastes.

(z) *Separate collection* means collecting recyclable materials which have been separated at the point of generation and keeping those materials separate from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles.

(aa) *Sludge* means the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solid or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved material in irrigation return flows or other common water pollutants.

(bb) *Solid waste* means garbage, refuse, sludge, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater

effluents, dissolved materials in irrigation return flows or other common water pollutants. Unless specifically noted otherwise, the term ''solid waste'' as used in these guidelines shall not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.

(cc) *Source separation* means the setting aside of recyclable materials at their point of generation by the generator.

(dd) *Specification* means a clear and accurate description of the technical requirements for materials, products or services, identifying the minimum requirements for quality and construction of materials and equipment necessary for an acceptable product. In general, specifications are in the form of written descriptions, drawings, prints, commercial designations, industry standards, and other descriptive references.

(ee) *Stationary compactor* means a powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation.

(ff) *Storage* means the interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal.

(gg) *Virgin material* means a raw material used in manufacturing that has been mined or harvested and has not as yet become a product.

## Subpart B—Requirements and Recommended Procedures

### § 246.200 High-grade paper recovery.

### § 246.200–1 Requirements.

High-grade paper generated by office facilities of over 100 office workers shall be separated at the source of generation, separately collected, and sold for the purpose of recycling.

### § 246.200–2 Recommended procedures: High-grade paper recovery from smaller offices.

The recovery of high-grade paper generated by office facilities of less than 100 office workers should be investigated in conformance with the following recommended procedures and implemented where feasible.

### § 246.200–3 Recommended procedures: Market study.

An investigation of markets should be made by the organization responsible for the sale of recyclable materials in each Federal agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered paper through standard market research techniques;

(b) Directly contacting buyers, and determining the buyers' quality specifications, the exact types of paper to be recycled, potential transportation agreements and any minimum quantity criteria; and

(c) Determining the price that the buyer will pay for the recovered paper and the willingness of the buyer to sign a contract for purchase of the paper at a guaranteed minimum price.

### § 246.200–4 Recommended procedures: Levels of separation.

A two-level separation is recommended for most facilities. This separation should consist of (a) high-grade wastepaper and (b) all other waste. Facilities that produce large enough quantities of waste computer paper and cards to make their separation into a separate category cost effective may choose to implement three levels of separation: (1) Computer papers, (2) other high-grade papers, (3) all other wastes.

### § 246.200–5 Recommended procedures: Methods of separation and collection.

(a) Systems designed to recover high grades of office paper at the source of generation, i.e., the desk, are the desktop system, the two-wastebasket system, and the office centralized container system.

(b) With the desk-top system, recyclable paper is placed by the generator in a container on his desk, while other waste is placed in a wastebasket. With the two-wastebasket system, recyclable paper is placed by the generator in one desk-side wastebasket, and all other waste is placed in another. In the centralized container system, large

containers for the collection of recyclables are placed in centralized locations within the office areas of the building. Nonrecyclable waste is placed in desk-side wastebaskets.

(c) The recommended system is the desk-top system because it is designed to maximize recovery of high value material in an economically feasible manner. While the two-wastebasket system and centralized container system have been implemented with success in isolated instances, data indicate that, on the whole, these systems have experienced high levels of contamination, low levels of participation, and low revenues. The desk-top system has been designed to minimize these problems.

(d) The precise method of separation and collection used to implement the desk-top system will depend upon such things as the physical layout of the individual facility, the ease of collection, and the projected cost effectiveness of using various methods. The recommended desk-top system is carried out in the following manner:

(1) Workers are to deposit high-grade paper into a desk-top tray or other small desk-top holder to be supplied by the agency. This holder should be designed in such a way as to prevent it holding contaminants, such as food or beverage containers.

(2) At the office worker's convenience or when the tray is filled, the worker carries the paper to a conveniently located bulk container within the office area. This large container should be located in an area the worker frequents in the normal course of business.

(3) In locations where computer cards and printouts are to be collected separately, the receptacle for these wastes should be near the computer terminal or in some other logical, centrally located place.

(4) Collection of the high-grade paper from the bulk containers in the office area should be performed by the janitorial or general maintenance service.

The number of locations and the frequency of collection of these containers will be determined by office size and maintenance staff capacity.

(e) Mixed paper and some high-grade office papers have also been recovered for recycling by hand-picking in an individual building's trash room or at a centralized facility serving several buildings. With these hand-picking systems, recyclable waste is not separated at the source of generation, but is mixed with other waste in the usual manner and removed to a centralized location where recyclable paper is picked out of the mixed waste by hand. Facilities may choose to use this method of high-grade paper recovery if it is shown by analysis to be economically preferable to source separation.

### § 246.200–6 Recommended procedures: Storage.

Among the alternatives for paper storage are on-site bailing, the use of stationary compactors, or storage in corrugated boxes or normal waste containers. Stored paper should be protected from fire, inclement weather, theft, and vandalism.

### § 246.200–7 Recommended procedures: Transportation.

Transportation to market may be supplied by the facility, by a private hauler, or by the purchaser. Collection of the recyclable paper should be on a regular, established schedule.

### § 246.200–8 Recommended procedures: Cost analysis.

After potential markets have been located (but prior to initiation of formal bidding procedures), preliminary determinations of various separation methods, storage, and transportation costs have been made, and estimated tonnages of both recoverable high-grade paper and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum, the study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR part 243) and Thermal Processing and Land

Disposal Guidelines (40 CFR parts 240 and 241) should be included in the analysis. In formulating a separation system and evaluating its costs, every effort should be made to use janitorial and waste collection resources efficiently. This cost analysis should enable the facility to determine the most cost effective method of implementing the requirement of this part.

### § 246.200–9 Recommended procedures: Contracts.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible agency. Contracts should include the buyer's quality specifications, quantity and transportation agreements, a guarantee that the material will be accepted for one year or more, and a guaranteed minimum purchase price.

### § 246.200–10 Recommended procedures: Public information and education.

A well-organized and well-executed public information and education program explaining the justification, goals, methods and level of separation should be conducted to inform and motivate office personnel and secure their cooperation in separating their waste. This public information and education program should precede the program and continue on a regular basis for its duration.

## § 246.201 Residential materials recovery.

### § 246.201–1 Requirement.

Separation of used newspapers at the source of residential generation in conjunction with separate collection shall be carried out at all facilities in which more than 500 families reside, and the newspapers shall be sold for the purpose of recycling.

### § 246.201–2 Recommended procedures: Newsprint recovery from smaller residential facilities.

The recovery of newsprint generated by residential facilities of less than 500 families should be investigated in conformance with the following recommended procedures and implemented where feasible.

### § 246.201–3 Recommended procedures: Glass, can, and mixed paper separation.

In areas where markets are available, it is recommended that glass, cans, and mixed paper be separated at the source of generation and separately collected for the purpose of recycling.

### § 246.201–4 Recommended procedures: Market study.

An investigation of markets should be made for each material by the organization responsible for sale of recyclable materials in each agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered material through standard market research techniques.

(b) Directly contacting buyers and determining the buyers' quality specifications, potential transportation agreements and any minimum quantity criteria.

(c) Determining the prices that the buyer will pay for the recovered material and the willingness of the buyer to sign a contract for the purchase of the material at guaranteed minimum prices.

### § 246.201–5 Recommended procedures: Methods of separation and collection.

Following separation within the home, any of the following methods of collection may be used:

(a) Materials may be placed at the curbside by the resident and may be collected from each household using separate trucks or compartmentalized vehicles.

(b) For multi-family dwellings, separated materials may be placed in bulk containers located outside of the building and collected by trucks dispatched to collect recyclables.

(c) Collection stations may be set up at convenient locations to which residents bring recyclables. These stations should provide separate bulk containers for each item to be recycled. The size and type of container will depend

on the volume and type of material collected, the method of transportation to be used in hauling the materials to market and the frequency of removal.

### § 246.201–6 Recommended procedures: Transportation to market.

Transportation to market may be supplied by the facility or the community generating the waste, by a private hauler, or by the purchaser.

### § 246.201–7 Recommended procedures: Cost analysis.

After potential markets have been located (but prior to initiation of formal bidding procedures), preliminary determinations of various separation methods, storage and transportation costs have been made, and estimated tonnages of both recoverable materials and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum this study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR part 243) and Thermal Processing and Land Disposal Guidelines (40 CFR parts 240 and 241) should be included in the analysis. In formulating a separate collection system and evaluating its costs, every effort should be made to use idle equipment and underutilized collection manpower to reduce separate collection costs. This cost analysis should enable the facility to determine the most cost effective method if implementing the requirements of this part.

### § 246.201–8 Recommended procedures: Contracts.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible jurisdiction. Contracts should include the buyer's quality specifications, quantity and transportation agreements, a guarantee that the material will be accepted for one year or more and a guaranteed minimum purchase price.

### § 246.201–9 Recommended procedures: Public information and education.

A well organized and well executed public information and education program explaining the justification, goals, methods and level of separation should be conducted to inform and motivate householders and to secure their cooperation in separating their waste. This public information and education program should precede the program and continue on a regular basis for its duration.

## § 246.202 Corrugated container recovery.

### § 246.202–1 Requirement.

Any commercial establishment generating 10 or more tons of waste corrugated containers per month shall separately collect and sell this material for the purpose of recycling.

### § 246.202–2 Recommended procedures: Corrugated container recovery from smaller commercial facilities.

The recovery of corrugated containers from commercial facilities generating less than 10 tons per month should be investigated in conformance with the following recommended procedures and implemented where feasible.

### § 246.202–3 Recommended procedures: Market study.

An investigation of markets should be made by the organization responsible for sale of recyclable material in each Federal agency and should include at a minimum:

(a) Identifying potential purchasers of the recovered corrugated through standard market research techniques.

(b) Directly contacting buyers and determining the buyers' quality specifications, potential transportation agreements and any minimum quantity criteria.

(c) Determining the price that the buyer will pay for the recovered corrugated and the willingness of the

buyer to sign a contract for purchase of the paper at a guaranteed minimum price.

### § 246.202–4 Recommended procedures: Methods of separation and storage.

The method selected will depend upon such variables as the physical layout of the individual generating facility, the rate at which the corrugated accumulates, the storage capacity of the facility, and the projected cost-effectiveness of using the various methods. All of the following suggested modes of separation and storage presuppose that the corrugated boxes will be accumulated at a central location in the facility after their contents are removed and that the boxes are flattened.

(a) Balers of various sizes: Corrugated boxes are placed in balers and compacted into bales. These bales may be stored inside or outside of the facility. The bales should be protected from fire, inclement weather, theft, and vandalism.

(b) Stationary compactors or bulk containers: Corrugated boxes are placed in a stationary compactor or bulk containers outside of the facility. The containers should be protected from fire, inclement weather, theft and vandalism.

### § 246.202–5 Recommended procedures: Transportation.

Transportation to market may be supplied by either the facility, a private hauler or the purchaser. In facilities to which goods are delivered from a central warehouse, corrugated may be backhauled by delivery trucks to the central facility and baled there for delivery to a user.

### § 246.202–6 Recommended procedures: Cost analysis.

After potential markets have been identified (but prior to initiation of formal bidding), preliminary determinations of various separation methods, storage and transportation costs have been made, and estimated tonnages of both recoverable material and residual solid waste have been established, an analysis should be conducted which compares the costs of the present waste collection and disposal system with the proposed segregated systems. At a minimum, the study should include all capital, operating and overhead costs and take into account credits for revenue from paper sales and savings from diverting recycled materials from disposal. Potential costs to upgrade collection and disposal practices to comply with EPA's Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Wastes (40 CFR part 243) and Thermal Processing and Land Disposal Guidelines (40 CFR parts 240 and 241) should be included in the analysis. This cost analysis should enable the facility to determine the most cost effective method of implementing these guidelines.

### § 246.202–7 Recommended procedures: Establishment of purchase contract.

Formal bids should be requested for purchase of the recovered materials, such bids being solicited in conformance with bidding procedures established for the responsible agency. Contracts should include the buyer's quality specifications, transportation agreements, a guarantee that the material will be accepted for one year or more and a guaranteed minimum purchase price.

### § 246.203 Reevaluation.

## APPENDIX TO PART 246—RECOMMENDED BIBLIOGRAPHY

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# PART 247—COMPREHENSIVE PROCUREMENT GUIDELINE FOR PRODUCTS CONTAINING RECOVERED MATERIALS

### Subpart A—General

Sec.


### Subpart B—Item Designations



AUTHORITY: 42 U.S.C. 6912(a) and 6962; E.O. 12873, 58 FR 54911.

SOURCE: 60 FR 21381, May 1, 1995, unless otherwise noted.

## Subpart A—General

### § 247.1 Purpose and scope.

(a) The purpose of this guideline is to assist procuring agencies in complying with the requirements of section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 6962, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of this part.

(b) This guideline designates items that are or can be made with recovered materials and whose procurement by procuring agencies will carry out the objectives of section 6002 of RCRA. EPA's recommended practices with respect to the procurement of specific designated items are found in the companion Recovered Materials Advisory Notice(s).

(c) EPA believes that adherence to the recommendations in the Recovered Materials Advisory Notice(s) constitutes compliance with RCRA section 6002. However, procuring agencies may adopt other types of procurement programs consistent with RCRA section 6002.

### § 247.2 Applicability.

(a)(1) This guideline applies to all procuring agencies and to all procurement actions involving items designated by EPA in this part, where the procuring agency purchases $10,000 or more worth of one of these items during the course of a fiscal year, or where the cost of such items or of functionally equivalent items purchased during the preceding fiscal year was $10,000 or more.

(2) This guideline applies to Federal agencies, to State and local agencies using appropriated Federal funds to procure designated items, and to persons contracting with any such agencies with respect to work performed

under such contracts. Federal procuring agencies should note that the requirements of RCRA section 6002 apply to them whether or not appropriated Federal funds are used for procurement of designated items.

(3) The $10,000 threshold applies to procuring agencies as a whole rather than to agency subgroups such as regional offices or subagencies of a larger department or agency.

(b) The term ''procurement actions'' includes:

(1) Purchases made directly by a procuring agency and purchases made directly by any person (e.g., a contractor) in support of work being performed for a procuring agency, and

(2) Any purchases of designated items made ''indirectly'' by a procuring agency, as in the case of procurements resulting from grants, loans, funds, and similar forms of disbursements of monies.

(c)(1) This guideline does not apply to purchases of designated items which are unrelated to or incidental to Federal funding, i.e., not the direct result of a contract or agreement with, or a grant, loan, or funds disbursement to, a procuring agency.

(2) This guideline also does not apply to purchases made by private party recipients (e.g., individuals, non-profit organizations) of Federal funds pursuant to grants, loans, cooperative agreements, and other funds disbursements.

### § 247.3 Definitions.

As used in this procurement guideline and the related Recovered Materials Advisory Notice(s):

*Act* or *RCRA* means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as amended, 42 U.S.C 6901 *et seq;*

*Blanket insulation* means relatively flat and flexible insulation in coherent sheet form, furnished in units of substantial area. Batt insulation is included in this term;

*Board insulation* means semi-rigid insulation preformed into rectangular units having a degree of suppleness, particularly related to their geometrical dimensions;

*Building insulation* means a material, primarily designed to resist heat flow, which is installed between the conditioned volume of a building and adjacent unconditioned volumes or the outside. This term includes but is not limited to insulation products such as blanket, board, spray-in-place, and loose-fill that are used as ceiling, floor, foundation, and wall insulation;

*Cellulose fiber loose-fill* means a basic material of recycled wood-based cellulosic fiber made from selected paper, paperboard stock, or ground wood stock, excluding contaminated materials which may reasonably be expected to be retained in the finished product, with suitable chemicals introduced to provide properties such as flame resistance, processing and handling characteristics. The basic cellulosic material may be processed into a form suitable for installation by pneumatic or pouring methods;

*Engine lubricating oils* means petroleum-based oils used for reducing friction in engine parts;

*Federal agency* means any department, agency, or other instrumentality of the Federal government; any independent agency or establishment of the Federal government including any government corporation; and the Government Printing Office;

*Fiberglass insulation* means insulation which is composed principally of glass fibers, with or without binders;

*Foam-in-place insulation* is rigid cellular foam produced by catalyzed chemical reactions that hardens at the site of the work. The term includes spray-applied and injected applications such as spray-in-place foam and pour-in-place;

*Gear oils* means petroleum-based oils used for lubricating machinery gears;

*Hydraulic fluids* means petroleum-based hydraulic fluids;

*Hydraulic mulch* means a mulch that is a cellulose-based (paper or wood) protective covering that is mixed with water and applied through mechanical spraying in order to aid the germination of seeds and to prevent soil erosion;

*Hydroseeding* means the process of spraying seeds mixed with water through a mechanical sprayer (hydroseeder). Hydraulic mulch, fertilizer, a tacking agent, or a wetting agent can also be added to the water/seed mix for enhanced performance;

*Laminated paperboard* means board made from one or more plies of kraft paper bonded together, with or without facers, that is used for decorative, structural, or insulating purposes;

*Loose-fill insulation* means insulation in granular, nodular, fibrous, powdery, or similar form, designed to be installed by pouring, blowing or hand placement;

*Mineral fiber insulation* means insulation (rock wool or fiberglass) which is composed principally of fibers manufactured from rock, slag or glass, with or without binders;

*Paper* means one of two broad subdivisions of paper products, the other being paperboard. Paper is generally lighter in basis weight, thinner, and more flexible than paperboard. Sheets 0.012 inch or less in thickness are generally classified as paper. Its primary uses are for printing, writing, wrapping, and sanitary purposes. However, in this guideline, the term paper is also used as a generic term that includes both paper and paperboard.

*Paper product* means any item manufactured from paper or paperboard. The term paper product is used in this guideline to distinguish such items as boxes, doilies, and paper towels from printing and writing papers.

*Perlite composite board* means insulation board composed of expanded perlite and fibers formed into rigid, flat, rectangular units with a suitable sizing material incorporated in the product. It may have on one or both surfaces a facing or coating to prevent excessive hot bitumen strike-in during roofing installation;

*Person* means an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, Federal agency, State, municipality, commission, political subdivision of a State, or any interstate body;

*Phenolic insulation* means insulation made with phenolic plastics which are plastics based on resins made by the condensation of phenols, such as phenol or cresol, with aldehydes;

*Polyisocyanurate insulation* means insulation produced principally by the polymerization of polymeric polyisocyanates, usually in the presence of polyhydroxyl compounds with the addition of cell stabilizers, blowing agents, and appropriate catalyst to produce a polyisocyanurate chemical structure;

*Polystyrene insulation* means an organic foam composed principally of polymerized styrene resin processed to form a homogenous rigid mass of cells;

*Polyurethane insulation* means insulation composed principally of the catalyzed reaction product of polyisocyanates and polyhydroxyl compounds, processed usually with a blowing agent to form a rigid foam having a predominantly closed cell structure;

*Postconsumer material* means a material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. *Postconsumer material* is a part of the broader category of *recovered materials.*

*Postconsumer recovered paper* means:

(1) Paper, paperboard and fibrous wastes from retail stores, office buildings, homes and so forth, after they have passed through their end-usage as a consumer item including: Used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards and used cordage; and

(2) All paper, paperboard and fibrous wastes that enter and are collected from municipal solid waste;

*Practicable* means capable of being used consistent with: Performance in accordance with applicable specifications, availability at a reasonable price, availability within a reasonable period of time, and maintenance of a satisfactory level of competition;

*Procurement item* means any device, good, substance, material, product, or other item, whether real or personal property, which is the subject of any purchase, barter, or other exchange made to procure such item;

*Procuring agency* means any Federal agency, or any State agency or agency of a political subdivision of a State, which is using appropriated Federal funds for such procurement, or any person contracting with any such agency with respect to work performed under such contract;

*Purchasing* means the act of and the function of responsibility for the acquisition of equipment, materials, supplies, and services, including: Buying, determining the need, selecting the supplier, arriving at a fair and reasonable price and terms and conditions, preparing the contract or purchase order, and follow-up;

*Recovered materials* means waste materials and byproducts which have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly reused within, an original manufacturing process;

*Recovered materials,* for purposes of purchasing paper and paper products, means waste material and byproducts that have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly reused within, an original manufacturing process. In the case of paper and paper products, the term *recovered materials* includes:

(1) Postconsumer materials such as—

(i) Paper, paperboard, and fibrous wastes from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: Used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; and

(ii) All paper, paperboard, and fibrous wastes that enter and are collected from municipal solid waste, and

(2) Manufacturing, forest residues, and other wastes such as—

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel in smaller rolls of rough sheets) including: Envelope cuttings, bindery trimmings, and other paper and paperboard waste, resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others;

(iii) Fibrous byproducts of harvesting, manufacturing, extractive, or wood-cutting processes, flax, straw, linters, bagasse, slash, and other forest residues;

(iv) Wastes generated by the conversion of goods made from fibrous material (that is, waste rope from cordage manufacture, textile mill waste, and cuttings); and

(v) Fibers recovered from waste water which otherwise would enter the waste stream.

*Re-refined oils* means used oils from which the physical and chemical contaminants acquired through previous use have been removed through a refining process;

*Retread tire* means a worn automobile, truck, or other motor vehicle tire whose tread has been replaced;

*Rock wool insulation* means insulation which is composed principally from fibers manufactured from slag or natural rock, with or without binders;

*Specification* means a description of the technical requirements for a material, product, or service that includes the criteria for determining whether these requirements are met. In general, specifications are in the form of written commercial designations, industry standards, and other descriptive references;

*Spray-in-place insulation* means insulation material that is sprayed onto a surface or into cavities and includes cellulose fiber spray-on as well as plastic rigid foam products;

*Spray-in-place foam* is rigid cellular polyurethane or polyisocyanurate foam produced by catalyzed chemical reactions that hardens at the site of the work. The term includes spray-applied and injected applications;

*State* means any of the several states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands;

*Structural fiberboard* means a fibrous-felted, homogenous panel made from lignocellulosic fibers (usually wood, cane, or paper) and having a density of less than 31 lbs/ft$^3$ but more than 10 lbs/ft$^3$. It is characterized by an integral

bond which is produced by interfelting of the fibers, but which has not been consolidated under heat or pressure as a separate stage of manufacture;

*Tire* means the following types of tires: Passenger car tires, light- and heavy-duty truck tires, high-speed industrial tires, bus tires, and special service tires (including military, agricultural, off-the-road, and slow-speed industrial);

### § 247.4 Contracting officer requirements.

Within one year after the effective date of each item designation, contracting officers shall require that vendors:

(a) Certify that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by applicable specifications or other contractual requirements, and

(b) Estimate the percentage of total material utilized for the performance of the contract which is recovered materials.

### § 247.5 Specifications.

(a) RCRA section 6002(d)(1) required Federal agencies that have the responsibility for drafting or reviewing specifications for procurement items procured by Federal agencies to revise their specifications by May 8, 1986, to eliminate any exclusion of recovered materials and any requirement that items be manufactured from virgin materials.

(b) RCRA section 6002(d)(2) requires that within one year after the publication date of each item designation by the EPA, each procuring agency must assure that its specifications for these items require the use of recovered materials to the maximum extent possible without jeopardizing the intended end use of these items.

### § 247.6 Affirmative procurement programs.

RCRA section 6002(i) provides that each procuring agency which purchases items designated by EPA must establish an affirmative procurement program, containing the four elements listed below, for procuring such items containing recovered materials to the maximum extent practicable:

(a) Preference program for purchasing the designated items;

(b) Promotion program;

(c) Procedures for obtaining estimates and certifications of recovered materials content and for verifying the estimates and certifications; and

(d) Annual review and monitoring of the effectiveness of the program.

### § 247.7 Effective date.

Within one year after the date of publication of any item designation, procuring agencies which purchase that designated item must comply with the following requirements of RCRA: affirmative procurement of the designated item (6002(c)(1) and (i)), specifications revision (6002(d)(2)), vendor certification and estimation of recovered materials content of the item (6002(c)(3) and (i)(2)(C)), and verification of vendor estimates and certifications (6002(i)(2)C)).

## Subpart B—Item Designations

### § 247.10 Paper and paper products.

Paper and paper products, excluding building and construction paper grades.

### § 247.11 Vehicular products.

(a) Lubricating oils containing re-refined oil, including engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils.

(b) Tires, excluding airplane tires.

(c) Reclaimed engine coolants, excluding coolants used in non-vehicular applications.

### § 247.12 Construction products.

(a) Building insulation products, including the following items:

(1) Loose-fill insulation, including but not limited to cellulose fiber, mineral fibers (fiberglass and rock wool), vermiculite, and perlite;

(2) Blanket and batt insulation, including but not limited to mineral fibers (fiberglass and rock wool);

(3) Board (sheathing, roof decking, wall panel) insulation, including but not limited to structural fiberboard and laminated paperboard products, perlite composite board, polyurethane,

polyisocyanurate, polystyrene, phenolics, and composites; and

(4) Spray-in-place insulation, including but not limited to foam-in-place polyurethane and polyisocyanurate, and spray-on cellulose.

(b) Structural fiberboard and laminated paperboard products for applications other than building insulation, including building board, sheathing, shingle backer, sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (coverboard).

(c) Cement and concrete, including concrete products such as pipe and block, containing coal fly ash or ground granulated blast furnace (GGBF) slag.

(d) Carpet made of polyester fiber for use in low- and medium-wear applications.

(e) Floor tiles and patio blocks containing recovered rubber or plastic.

### § 247.13 Transportation products.

Traffic barricades and traffic cones used in controlling or restricting vehicular traffic.

### § 247.14 Park and recreation products.

Playground surfaces and running tracks containing recovered rubber or plastic.

### § 247.15 Landscaping products.

(a) Hydraulic mulch products containing recovered paper or recovered wood used for hydroseeding and as an over-spray for straw mulch in landscaping, erosion control, and soil reclamation.

(b) Compost made from yard trimmings, leaves, and/or grass clippings for use in landscaping, seeding of grass or other plants on roadsides and embankments, as a nutritious mulch under trees and shrubs, and in erosion control and soil reclamation.

### § 247.16 Non-paper office products.

(a) Office recycling containers and office waste receptacles.

(b) Plastic desktop accessories.

(c) Toner cartridges.

(d) Binders.

(e) Plastic trash bags.

### § 247.17 Miscellaneous products. [Reserved]

## PART 254—PRIOR NOTICE OF CITIZEN SUITS

Sec.



AUTHORITY: Sec. 7002, Pub. L. 94–580, 90 Stat. 2825 (42 U.S.C. 6972).

SOURCE: 42 FR 56114, Oct. 21, 1977, unless otherwise noted.

### § 254.1 Purpose.

Section 7002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, authorizes suit by any person to enforce the Act. These suits may be brought where there is alleged to be a violation by any person (including (a) the United States, and (b) any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution) of any permit, standard, regulation, condition, requirement, or order which has become effective under the Act, or a failure of the Administrator to perform any act or duty under the Act, which is not discretionary with the Administrator. These actions are to be filed in accordance with the rules of the district court in which the action is instituted. The purpose of this part is to prescribe procedures governing the notice requirements of subsections (b) and (c) of section 7002 as a prerequisite to the commencement of such actions.

### § 254.2 Service of notice.

(a) Notice of intent to file suit under subsection 7002(a)(1) of the Act shall be served upon an alleged violator of any permit, standard, regulation, condition, requirement, or order which has become effective under this Act in the following manner:

(1) If the alleged violator is a private individual or corporation, service of notice shall be accomplished by registered mail, return receipt requested, addressed to, or by personal service

upon, the owner or site manager of the building, plant, installation, or facility alleged to be in violation. A copy of the notice shall be mailed to the Administrator of the Environmental Protection Agency, the Regional Administrator of the Environmental Protection Agency for the region in which the violation is alleged to have occurred, and the chief administrative officer of the solid waste management agency for the State in which the violation is alleged to have occurred. If the alleged violator is a corporation, a copy of the notice shall also be mailed to the registered agent, if any, of that corporation in the State in which such violation is alleged to have occurred.

(2) If the alleged violator is a State or local agency, service of notice shall be accomplished by registered mail, return receipt requested, addressed to, or by personal service upon, the head of that agency. A copy of the notice shall be mailed to the chief administrator of the solid waste management agency for the State in which the violation is alleged to have occurred, the Administrator of the Environmental Protection Agency, and the Regional Administrator of the Environmental Protection Agency for the region in which the violation is alleged to have occurred.

(3) If the alleged violator is a Federal agency, service of notice shall be accomplished by registered mail, return receipt requested, addressed to, or by personal service upon, the head of the agency. A copy of the notice shall be mailed to the Administrator of the Environmental Protection Agency, the Regional Administrator of the Environmental Protection Agency for the region in which the violation is alleged to have occurred, the Attorney General of the United States, and the chief administrative officer of the solid waste management agency for the State in which the violation is alleged to have occurred.

(b) Service of notice of intent to file suit under subsection 7002(a)(2) of the Act shall be accomplished by registered mail, return receipt requested, addressed to, or by personal service upon, the Administrator, Environmental Protection Agency, Washington, DC 20460. A copy of the notice shall be mailed to the Attorney General of the United States.

(c) Notice given in accordance with the provisions of this part shall be considered to have been served on the date of receipt. If service was acomplished by mail, the date of receipt will be considered to be the date noted on the return receipt card.

### § 254.3 Contents of notice.

(a) *Violation of permit, standard, regulation, condition, requirement, or order.* Notice regarding an alleged violation of a permit, standard, regulation, condition, requirement, or order which has become effective under this Act shall include sufficient information to permit the recipient to identify the specific permit, standard, regulation, condition, requirement, or order which has allegedly been violated, the activity alleged to constitute a violation, the person or persons responsible for the alleged violation, the date or dates of the violation, and the full name, address, and telephone number of the person giving notice.

(b) *Failure to act.* Notice regarding an alleged failure of the Administrator to perform an act or duty which is not discretionary under the Act shall identify the provisions of the Act which require such act or create such duty, shall describe with reasonable specificity the action taken or not taken by the Administrator which is claimed to constitute a failure to perform the act or duty, and shall state the full name, address, and telephone number of the person giving the notice.

(c) *Identification of counsel.* The notice shall state the name, address, and telephone number of the legal counsel, if any, representing the person giving the notice.

## PART 255—IDENTIFICATION OF REGIONS AND AGENCIES FOR SOLID WASTE MANAGEMENT

### Subpart A—General Provisions

Sec.

AUTHORITY: Sec. 2002(a)(1), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6912(a)(1)). Also issued under sec. 4006(b), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6946(b)).

SOURCE: 42 FR 24927, May 16, 1977, unless otherwise noted.

## Subpart A—General Provisions

### § 255.1 Scope and purpose.

(a) These guidelines are applicable to policies, procedures, and criteria for the identification of those areas which have common solid waste management problems and which are appropriate units for planning regional solid waste management services pursuant to section 4002(a) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (the Act). The guidelines also define and guide the identification of which functions will be carried out by which agencies pursuant to section 4006 of the Act.

(b) The purposes of these guidelines are to (1) provide useful criteria for selecting the regions and agencies to be identified pursuant to section 4006 of the Act and (2) provide guidance for conducting the process which will result in formal identification of those regions and agencies.

(c) Identifications made pursuant to these guidelines should be consistent with State solid waste management plans and strategies. A State strategy establishes: Goals for prevention of adverse effects on the environment resulting from improper solid waste disposal including protection of surface and ground water quality, air quality and the land; priorities among waste types; priorities among disposal practices; and the roles of existing agencies with responsibilities in solid waste management. The identification process should cover all waste types (residential and commercial solid waste, hazardous wastes, industrial sludges and pretreatment residues, municipal sewage sludge, air pollution control residue, septage, mining and agricultural waste, other industrial waste, and solid waste from community activities), all disposal practices (impoundments, pits, ponds, lagoons, landfills, dumps, land-spreading, and industrial leaching fields) and all technological approaches (conservation, recovery, incineration, disposal).

(Also sec. 4002(a), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6942))

### § 255.2 Definitions.

The Act contains an extensive list of definitions in section 1004 which are applicable here. There are further definitions of terms in 40 CFR part 29 of this chapter which apply unless the context herein requires otherwise.

[42 FR 24927, May 16, 1977, as amended at 48 FR 29302, June 24, 1983]

## Subpart B—Criteria for Identifying Regions and Agencies

### § 255.10 Criteria for identifying regions.

The following criteria are to assist in identifying regions pursuant to section 4006(a) of the Act.

(a) Geographic areas which have a history of cooperating to solve problems in environmental or other related matters should be considered.

(1) Regions encompassing existing regional, including countywide, systems or institutions, including those of the

private sector, should be evaluated. Changes in their boundaries may be needed for economic viability or other reasons in keeping with the State plan.

(2) Boundary selection which would require the creation of new agencies should be considered only where necessary. The relationship among established agencies should be considered. Where institutional gaps or inadequacies are found, regions should be identified keeping in mind which agencies would be able to fill those needs.

(b) The size and location of regions should permit resource recovery and conservation in accordance with the objectives in section 4001 of the Act.

(1) A region's size and configuration should be considered, weighing transportation costs against economies of scale.

(2) Left-over regions having inadequate resources or volumes of waste should be avoided.

(3) Location should be considered relative to available transportation and to markets for recovered resources.

(c) The volume of wastes within a region will influence the technology choices for recovery and disposal, determine economies of scale, and affect marketability of resources recovered. A region should include sufficient volume of waste to support the goals and objectives of the State plan, including materials or energy recovery as appropriate.

(d) Waste type should be considered since it also affects management options. Industrial or hazardous waste streams may warrant special consideration or special boundaries.

(e) The effect of geologic and hydrologic conditions, such as soil suitability, land availability, natural barriers (rivers and mountains), the quantity and availability of water resources, and the susceptibility of ground water to contamination should be considered. Aquifer protection in accordance with State water quality management plans and policies could influence boundary selection.

(f) Coordination with ongoing planning for other purposes may be an influence in selecting boundaries.

(1) The local and regional planning process should be integrated into the State planning process.

(2) Use of a common data base should be encouraged among transportation, land use, and other planning areas.

(3) To the extent practicable, coterminous planning regions should be encouraged, and larger regions should be multiples of whole smaller regions.

(4) Coordination should be provided with those agencies designated for water quality management planning under section 208 of the Federal Water Pollution Control Act, with underground injection control agencies designated in accordance with the Safe Drinking Water Act, and with air quality planning agencies designated under the Clean Air Act.

(Sec. 4002(a), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6942))

### § 255.11 Criteria for identifying agencies.

The following criteria are intended to assist in the process of agency selection pursuant to section 4006(b) of the Act. They may also be useful in pointing out needed improvements in the qualifications of the selected agencies.

(a) Existing agencies with demonstrated satisfactory ability to plan, manage, or operate solid waste management services should be considered for planning and implementation responsibilities. Agencies which have completed planning that resulted in successful implementation of solid waste management facilities or services should be given priority consideration for future planning responsibilities when they otherwise meet these criteria.

(b) An agency to be identified as responsible for conducting regional solid waste management planning should:

(1) Be a representative organization composed of, or whose membership is composed of, individuals at least a majority of whom are elected officials of local governments or their designees having jurisdiction in the planning region.

(2) Have planning jurisdiction in the entire planning region.

(3) Be capable of having the planning process fully underway within 1 year after identification.

(4) Have established procedures for adoption, review, and revision of plans

and resolution of major issues, including procedures for public participation in the planning process.

(5) Have appropriate experience and skills to perform all of its assigned responsibilities, including expertise for the particular waste type, processing or disposal technology, and functional area. (Attention is directed to OMB Circular No. A–95, paragraph 1.e., part IV of Attachment A which encourages the designation of established substate district comprehensive planning agencies as the agencies to carry out areawide planning assisted or required under any Federal program).

(c) In identifying agencies for solid waste management planning and implementation under section 4006 of the Act, the State should review the solid waste activities being conducted by water quality management planning agencies designated under section 208 of the Federal Water Pollution Control Act. Where feasible, identification of such agencies should be considered in the joint identification processes of subpart C of this part. There should be a formal means of coordination established with the State water quality management agencies.

(d) Planning objectives will influence agency selection. Distinctions may be made between policy planning and facility planning and between planning a single solid waste management system and comprehensive planning which addresses trade-offs among various media.

(e) For coordinating planning and implementation under the State plan, as required in section 4003(1)(c), consideration should be given to identifying one agency for both functions. Where separate planning and implementation agencies are selected, there should be some means to ensure implementation, such as State legislation or an interagency agreement that all constituent jurisdictions will abide by the plan. Furthermore, strong coordination should be established between the planning agency and the implementing agency. During the planning period, the implementation agency should have continual access to plan development processes. There should be an administrative procedure to resolve conflicts between planners and implementers.

(f) The agency responsible for carrying out the regional plan should be constituted with authority to implement the plan in its constituent jurisdictions.

(g) The need for a reliable volume of waste to supply disposal or recovery facilities should be addressed. The Agency providing such facilities whose member jurisdictions could choose whether or not to utilize the facility should analyze that need and consider methods such as franchising or public utility controls to assure an adequate supply.

## Subpart C—Procedures for Identifying Regions and Agencies

NOTE: The following procedures are provided to assist in establishing consultation and joint identification processes to be used for identifying regions and agencies pursuant to section 4006. Any process which meets the substantive intent of these guidelines may be submitted to the EPA Regional Administrator for purposes of determining grant eligibility under section 4007, especially if such process has been mandated or funded by State legislation.

### § 255.20 Preliminary identification of regions.

Preliminary identification of regions should be made by the Governor or his representative after consultation with regional and areawide planning agencies, water quality and solid waste management planning agencies, cities, and counties and other appropriate units of general purpose local government. The Governor should notify the concerned agencies of his recommendations concerning boundaries. Where the regional identification has already been established by State legislation or other method in keeping with these guidelines, this notification need only request comments on the existing arrangement.

[42 FR 24927, May 16, 1977, as amended at 48 FR 29303, June 24, 1983]

### § 255.21 Local consultation on boundaries.

Any chief executive of a general purpose government within the State may

comment on the Governor's recommendation concerning the boundaries.

(a) The purposes of these comments are to assure that the experience of local agencies is used to fullest advantage in boundary decisions, that incompatible institutional arrangements are not forced, and that significant local considerations are not overlooked.

(b) When the objectives of the Act concerning local consultation can be met by an equivalent or existing process established under State administrative procedures acts or other State procedural guidance, the Governor may request that the EPA accept that process in fulfillment of the grant eligibility criteria under section 4007 of the Act.

### § 255.22 Establishing regional boundaries.

Under section 4006(a) of the Act the formal means for identifying regional boundaries are to be regulations promulgated by the Governor. Where the identification of areas has already been made by State legislation or other means which have legal stature equivalent to the required regulations, and where notification and consultation have occurred pursuant to §§ 255.20 and 255.21 of this part, such legislation may be used in lieu of those regulations. Where substantial disagreement persists between the Governor and local officials, normal State administrative and judicial appeals procedures are available to resolve such conflict.

### § 255.23 Joint identification of agencies.

(a) The Governor should designate a lead agency to manage the identification process. That agency should review established notification procedures to determine that at least all general purpose local governments within the State, all units of regional governance, all existing solid waste and water quality management planning agencies, and all areawide agencies and the state process under Executive Order 12372 will be notified. If necessary, a supplemental distribution list should be prepared. Consideration should be given to addressing individual offices within those agencies.

(b) The Governor should, by correspondence or State notification procedures, notify the agencies on the distribution list (paragraph (a) of this section) of the purpose and schedule of the joint identification process. This may be coincident with the notification in § 255.20.

(c) The Governor, an appropriate legislative committee, and appropriate local elected officials may submit nominations of agencies and functions to the lead agency appointed by the Governor. This lead agency should make such nominations public.

(d) Chief executives of agencies on the distribution list may comment by letter on the nominations.

(e) If a disagreement exists which cannot be settled by correspondence or a meeting with the Governor's representative, a public hearing should be held and all elected officials of local general purpose governments within the region should be invited. The purpose of this meeting will be for the local officials to reach a consensus regarding the agency(ies) to be formally identified.

(f) When a consensus is reached among local elected officials a formal agreement should be made in conformance with State administrative procedures. It should be binding until revised in accordance with this subpart.

(g) When the local consensus is in agreement with the State opinion, the State should confirm that agreed arrangement, formally establishing the duties and responsibilities of the identified agencies by legislative resolution or executive order.

(h) In the event that a consensus cannot be reached before 270 days after promulgation of regulations pursuant to § 255.22 the Governor should designate a State agency to develop and implement the plan for the concerned region.

[42 FR 24927, May 16, 1977, as amended at 48 FR 29303, June 24, 1983]

### § 255.24 Procedure for identifying interstate regions.

If the Governor's recommendation, the local consensus, or a neighboring Governor's recommendation is that an interstate region be identified, the procedures described in this subpart

should be extended to include notification and comment of all concerned officials in the entire recommended region.

(a) Section 4006(c) of the Act establishes specific procedures for the conduct of interstate identification processes.

(b) Recommendations, nominations, and comments resulting from processes described in §§255.20 and 255.21 that concern interstate regions should be brought to the attention of the appropriate EPA Regional Administrator.

(c) The Governor should evaluate the use of interstate metropolitan area (Standard Metropolitan Statistical Area) boundaries for planning and management purposes, and consider nominating such areas where appropriate.

(Also sec. 4006(c), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6946(c)))

### § 255.25 Public participation.

Public participation in the process of identifying regions and agencies should be provided for, encouraged, and assisted by the State and local officials.

## Subpart D—Responsibilities of Identified Agencies and Relationship to Other Programs

### § 255.30 Responsibilities established.

The following duties and responsibilities should be assigned for all appropriate areas pursuant to section 4006.

(a) Disposal of municipal solid waste should be an identified responsibility throughout the State. In the event that no local or regional agency is held responsible for disposal for a region, a State agency should be identified and held accountable.

(b) Where the State plan identifies municipal sewage sludge disposal, hazardous waste disposal or other functions needing attention in a region, an agency should be identified as being responsible for that function in that region.

(c) These responsibilities may be assigned with the intent that private industry be the actual purveyor of service.

### § 255.31 Integration with other acts.

The Governor shall integrate the provisions of these guidelines for purposes of administration and enforcement, and should avoid duplication to the maximum extent practicable, with the appropriate regional identification provisions of the Clean Air Act (42 U.S.C. 1857 et seq.), the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Toxic Substances Control Act (15 U.S.C. 2601 et seq.), the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1401 et seq.) and other appropriate Acts of Congress.

(Sec. 1006(b), Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6905(b)))

### § 255.32 Coordination with other programs.

The region and agency identification criteria (§255.11) specify review of solid waste activities being conducted by water quality management planning agencies, underground injection control agencies, and air quality management agencies. There should be a formal means of coordination established between any agencies established under section 4006 which are not identical with these agencies. Coordination should be established so that permittees under the National Pollutant Discharge Elimination System of the Federal Water Pollution Control Act will be consulted concerning disposal of residual sludges.

### § 255.33 Inclusion of Federal facilities and Native American Reservations.

Major Federal facilities and Native American Reservations should be treated for the purposes of these guidelines as though they are incorporated municipalities, and the facility director or administrator should be considered the same as a locally elected official.

(Sec. 6001, Pub. L. 94–580, 90 Stat. 2795 (42 U.S.C. 6961))

## Subpart E—Submission and Revision of Identifications

### § 255.40 Notification of status.

This subpart describes procedures which may ultimately be required by EPA when it publishes regulations governing application and eligibility for grants under section 4007. Under these regulations the appropriate EPA Regional Administrator will consider the identifications made under section 4006 as one of the conditions of grant eligibility.

The Regional Administrator may accept, in State grant applications, notification of the status of these identifications to ensure that premature decisions on State plan development will not be forced by the timing of the identifications specified in the Act. Procedures are outlined here to advise the States of what EPA expects to require in such notification.

(a) The notification should specify those regional boundaries and agencies which are uncontested at the time of submission, and specify a schedule of hearings and determinations of subsequent identification of regions and agencies as consensus is reached.

(b) The appropriate level of detail and the timing of the identifications to be made should be established for each planning region after agreement between the State and the appropriate EPA Regional Administrator. The timing should depend upon how well the State plan is developed, the environmental and economic decisions to be made, and the existing management approaches to their resolution.

(c) The notification should list the major known interested agencies and private operators within each planning region and describe how they will be included in the process. Where appropriate, it should include an expression of their interest and a definition of the extent and limits of their role in solid waste management planning.

(d) The notification should provide a schedule for phasing of plan development with the identification of agencies to carry out those plans, showing the projected maturation of management agencies and the milestones for those agencies in taking over the plan implementation process.

(e) This notification should include establishment of State agencies where regional planning and implementation agencies have not been identified within 270 days of the Governor's promulgation of regulations identifying regional boundaries.

(See sec. 4006(b)(2))

### § 255.41 Procedure for revision.

The procedure for revising regional identifications or agency responsibilities should be specified by the notification.

(a) The State should review and, if appropriate, revise or modify the identification of regions and the responsibilities of local and regional agencies at intervals of less than 3 years. Review and modification should include, but not be limited to, the following areas:

(1) Whether new regions should be identified, or whether present boundaries should be modified.

(2) Whether responsibilities of an agency should be expanded or reduced due to changes in the needs for solid waste functions in the region.

(b) Revisions or adjustments to the State plan may require minor boundary or agency changes from time to time. The appropriate EPA Regional Administrator should be notified of such revisions by the State solid waste agency.

(c) Major revisions or adjustments in agencies or boundaries should be made in consultation with local officials and be subject to the same procedures used in the original identification process. Notification of such revisions should be submitted with State plan updates.

# PART 256—GUIDELINES FOR DEVELOPMENT AND IMPLEMENTATION OF STATE SOLID WASTE MANAGEMENT PLANS

## Subpart A—Purpose, General Requirements, Definitions

Sec.

AUTHORITY: Sec. 4002(b), Pub. L. 94–580, 90 Stat. 2813(b) (42 U.S.C. 6942(b)).

SOURCE: 44 FR 45079, July 31, 1979, unless otherwise noted.

EDITORIAL NOTE: For approval of State solid waste management plans see the List of CFR Sections Affected in the Finding Aids section of this volume.

## Subpart A—Purpose, General Requirements, Definitions

### § 256.01 Purpose and scope of the guidelines.

(a) The purpose of these guidelines is to assist in the development and implementation of State solid waste management plans, in accordance with section 4002(b) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6942(b)) (the ''Act''). These guidelines contain methods for achieving the objectives of environmentally sound management and disposal of solid and hazardous waste, resource conservation, and maximum utilization of valuable resources.

(b) These guidelines address the minimum requirements for approval of State plans as set forth in section 4003 of the Act. These are:

(1) The plan shall identify, in accordance with section 4006(b), (i) the responsibilities of State, local, and regional authorities in the implementation of the State plan, (ii) the distribution of Federal funds to the authorities responsible for development and implementation of the State plan, and (iii) the means for coordinating regional planning and implementation under the State plan.

(2) The plan shall, in accordance with section 4005(c), prohibit the establishment of new open dumps within the State, and contain requirements that all solid waste (including solid waste originating in other States, but not including hazardous waste) shall be (i) utilized for resource recovery or (ii) disposed of in sanitary landfills (within the meaning of section 4004(a)) or otherwise disposed of in an environmentally sound manner.

(3) The plan shall provide for the closing or upgrading of all existing open dumps within the State pursuant to the requirements of section 4005.

(4) The plan shall provide for the establishment of such State regulatory powers as may be necessary to implement the plan.

(5) The plan shall provide that no local government within the State shall be prohibited under State or local law from entering into long-term contracts for the supply of solid waste to resource recovery facilities.

(6) The plan shall provide for resource conservation or recovery and for the disposal of solid waste in sanitary landfills or for any combination of practices so as may be necessary to use or dispose of such waste in a manner that is environmentally sound.

(c) These guidelines address the requirement of section 4005(c) that a State plan:

> Shall establish, for any entity which demonstrates that it has considered other public or private alternatives for solid waste management to comply with the prohibition on open dumping and is unable to utilize such alternatives to so comply, a timetable or schedule of compliance for such practice or disposal of solid waste which specifies a schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with the prohibition on open dumping of solid waste within a reasonable time (not to exceed five years from the date of publication of the inventory).

### § 256.02 Scope of the State solid waste management plan.

(a)(1) The State plan shall address all solid waste in the State that poses potential adverse effects on health or the environment or provides opportunity for resource conservation or resource recovery. The plan shall consider:

(i) Hazardous wastes;

(ii) Residential, commercial and institutional solid waste;

(iii) Wastewater treatment sludge;

(iv) Pollution control residuals;

(v) Industrial wastes;

(vi) Mining wastes;

(vii) Agricultural wastes;

(viii) Water treatment sludge; and

(ix) Septic tank pumpings.

(2) The State plan shall consider the following aspects of solid waste management:

(i) Resource conservation;

(ii) Source separation;

(iii) Collection;

(iv) Transportation;

(v) Storage;

(vi) Transfer;

(vii) Processing (including resource recovery);

(viii) Treatment; and

(ix) Disposal.

(b) The State Plan shall establish and justify priorities and timing for actions. These priorities shall be based on the current level of solid waste management planning and implementation within the State, the extent of the solid waste management problem, the health, environmental and economic impacts of the problem, and the resources and management approaches available.

(c) The State plan shall set forth an orderly and manageable process for achieving the objectives of the Act and meeting the requirements of these quidelines. This process shall describe as specifically as possible the activities to be undertaken, including detailed schedules and milestones.

(d) The State plan shall cover a minimum of a five year time period from the date submitted to EPA for approval.

(e) The State plan shall identify existing State legal authority for solid waste management and shall identify modifications to regulations necessary to meet the requirements of these guidelines.

### § 256.03 State plan submission, adoption, and revision.

(a) To be considered for approval, the State plan shall be submitted to EPA within a reasonable time after final promulgation of these guidelines.

(b) Prior to submission to EPA, the plan shall be adopted by the State pursuant to State administrative procedures.

(c) The plan shall be developed in accord with public participation procedures required by Subpart G of this part.

(d) The plan shall contain procedures for revision. The State plan shall be revised by the State, after notice and public hearings, when the Administrator, by regulation, or the State determines, that:

(1) The State plan is not in compliance with the requirements of these guidelines;

(2) Information has become available which demonstrates the inadequacy of the plan; or

(3) Such revision is otherwise necessary.

(e) The State plan shall be reviewed by the State and, where necessary, revised and readopted not less frequently than every three years.

(f) States which are developing a complete State plan may submit the portion of the plan designed to satisfy the requirements of § 256.26 prior to submission of the complete plan.

[44 FR 45079, July 31, 1979, as amended at 46 FR 47051, Sept. 23, 1981]

### § 256.04 State plan approval, financial assistance.

(a) The Administrator shall, within six months after a State plan has been submitted for approval, approve or disapprove the plan. The Administrator shall approve a plan if he determines that:

(1) It meets the requirements of these guidelines which address sections 4003(1), (2), (3), and (5), and

(2) It contains provisions for revision pursuant to § 256.03.

(b) The Administrator shall review approved plans from time to time, and if he determines that revisions or corrections are necessary to bring such plan into compliance with all of the requirements of these guidelines, including the requirements which address sections 4003(4) and (6) and any new or revised requirement established by amendment to this part, he shall notify the State and provide an opportunity for such revisions and corrections and for an appeal and public hearing. If the plan continues to remain out of compliance, he shall withdraw his approval of such plan.

(c) Such withdrawal of approval shall cease to be effective upon the Administrator's determination that the State plan complies with the requirements of these guidelines.

(d) The Administrator shall approve a State application for financial assistance under subtitle D of the Act, and make grants to such State, if the Administrator determines that the State plan continues to be eligible for approval and is being implemented by the State.

(e) Upon withdrawal of approval of a State plan, the Administrator shall withhold Federal financial and technical assistance under subtitle D (other than such technical assistance as may be necessary to assist in obtaining reinstatement of approval) until such time as approval is reinstated. (Procedures for termination of financial assistance and for settlement of disputes are contained in 40 CFR part 30, appendix A, articles 7 and 8.)

(f) If a State submits to EPA the portion of the plan by which entities may, pursuant to § 256.26, obtain timetables or schedules of compliance for complying with the open dumping prohibition, the Administrator shall approve such portion of the plan if he determines that:

(1) The portion submitted satisfies the requirements of § 256.26;

(2) The State has the general legal authority to issue and enforce compliance schedules; and

(3) The remainder of the plan is being developed in conformity with these guidelines and will be completed within a reasonable period of time.

In giving partial plan approval, the Administrator shall specify in writing the timetable for completion of the final plan as required in paragraph (f)(3) of this section.

[44 FR 45079, July 31, 1979, as amended at 46 FR 47051, Sept. 23, 1981]

### § 256.05 Annual work program.

(a) The annual work program submitted for financial assistance under section 4008(a)(1) and described in the grant regulations (40 CFR part 35) shall be reviewed by the Administrator in order to determine whether the State plan is being implemented by the State.

(b) The Administrator and the State shall agree on the contents of the annual work program. The Administrator will consider State initiatives and priorities, in light of the goals of the Act, in determining annual work programs for each State. The annual work program represents a State's obligation incurred by acceptance of financial assistance.

(c) Annual guidance for the development of State work programs will be

issued by EPA. While this guidance will establish annual national priorities, flexibility will be provided in order to accommodate differing State priorities.

(d) The following documents developed under the State plan shall be included by reference in the annual work program:

(1) Substate solid waste management plans,

(2) Plans for the development of facilities and services, including hazardous waste management facilities and services, and

(3) Evidence of actions or steps taken to close or upgrade open dumps.

(e) The annual work program shall allocate the distribution of Federal funds to agencies responsible for the development and implementation of the State plan.

### § 256.06 Definitions.

Terms not defined below have the meanings assigned them by section 1004 of the Act.

*The Act* means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 *et seq.*).

*Criteria* means the ''Criteria for Classification of Solid Waste Disposal Facilities'', 40 CFR Part 257, promulgated under section 4004(a) of the Act.

*Facility* refers to any resource recovery system or component thereof, any system, program or facility for resource conservation, and any facility for collection, source separation, storage, transportation, transfer, processing, treatment or disposal of solid waste, including hazardous waste, whether such facility is associated with facilities generating such wastes or not.

*Implementation* means putting the plan into practice by carrying out planned activities, including compliance and enforcement activities, or ensuring such activities are carried out.

*Inactive facility* means a facility which no longer receives solid waste.

*Inventory of open dumps* means the inventory required under section 4005(b) and is defined as the list published by EPA of those disposal facilities which do not meet the criteria.

*Operator* includes facility owners and operators.

A *permit* is an entitlement to commence and continue operation of a facility as long as both procedural and performance standards are met. The term ''permit'' includes any functional equivalent such as a registration or license.

*Planning* includes identifying problems, defining objectives, collecting information, analyzing alternatives and determining necessary activities and courses of action.

*Provide for* in the phrase ''the plan shall (should) provide for'' means explain, establish or set forth steps or courses of action.

The term *shall* denotes requirements for the development and implementation of the State plan.

The term *should* denotes recommendations for the development and implementation of the State plan.

*Substate* refers to any public regional, local, county, municipal, or intermunicipal agency, or regional or local public (including interstate) solid or hazardous waste management authority, or other public agency below the State level.

## Subpart B—Identification of Responsibilities; Distribution of Funding

### § 256.10 Requirements.

(a) In accordance with sections 4003(1) and 4006 and the interim guidelines for identification of regions and agencies for solid waste management (40 CFR part 255), the State plan shall provide for:

(1) The identification of the responsibilities of State and substate (regional, local and interstate) authorities in the development and implementation of the State plan;

(2) The means of distribution of Federal funds to the authorities responsible for development and implementation of the State plan; and

(3) The means for coordinating substate planning and implementation.

(b) Responsibilities shall be identified for the classification of disposal facilities for the inventory of open dumps.

(c) Responsibilities shall be identified for development and implementation of the State regulatory program described in subpart C of this part.

(d) Responsibilities shall be identified for the development and implementation of the State resource conservation and resource recovery program described in subpart D of this part.

(e) State, substate and private sector responsibilities shall be identified for the planning and implementation of solid and hazardous waste management facilities and services.

(f) Financial assistance under sections 4008(a) (1) and (2) shall be allocated by the State to State and substate authorities carrying out development and implementation of the State plan. Such allocation shall be based on the responsibilities of the respective parties as determined under section 4006(b).

### § 256.11 Recommendations.

(a) Responsibilities should be identified for each of the solid waste types listed in § 256.02(a)(1).

(b) Responsibilities should be identified for each of the aspects of solid waste management listed in § 256.02(a)(2).

(c) Responsibilities should be identified for planning and designating ground water use with respect to design and operation of solid waste disposal facilities.

(d) Responsibilities should be identified for the development and implementation of the authorized State hazardous waste management program under subtitle C of the Act.

(e) The State plan should include a schedule and procedure for the continuing review, reassessment and reassignment of responsibilities.

## Subpart C—Solid Waste Disposal Programs

### § 256.20 Requirements for State legal authority.

In order to comply with sections 4003 (2) and (3), the State plan shall assure that the State has adequate legal authority to prohibit the establishment of new open dumps and to close or upgrade existing open dumps. The prohibition of the establishment of new open dumps shall take effect no later than six months after the date of promulgation of the criteria or on the date of approval of the State plan, whichever is later.

### § 256.21 Requirements for State regulatory powers.

In order to comply with section 4003(4), the State plan shall provide for the establishment of State regulatory powers. These powers:

(a) Shall be adequate to enforce solid waste disposal standards which are equivalent to or more stringent than the criteria for classification of solid waste disposal facilities (40 CFR part 257). Such authority shall be as definitive as possible and clearly establish the means for compliance.

(b) Shall include surveillance capabilities necessary to detect adverse environmental effects from solid waste disposal facilities. Such capabilities shall include access for inspection and monitoring by regulatory officials and the authority to establish operator monitoring and reporting requirements.

(c) Shall make use of a permit program which ensures that the establishment of new open dumps is prohibited.

(d) Shall have administrative and judicial enforcement capabilities, including enforceable orders, fines or other administrative procedures, as necessary to ensure compliance.

### § 256.22 Recommendations for State regulatory powers.

In order to assist compliance with section 4003(4), the following are recommendations for State regulatory powers as may be necessary to prohibit new open dumps and close or upgrade all existing open dumps.

(a) Solid waste disposal standards:

(1) Should be based on the health and environmental impacts of disposal facilities.

(2) Should specify design and operational standards.

(3) Should take into account the climatic, geologic, and other relevant characteristics of the State.

(b) Surveillance systems should establish monitoring requirements for facilities.

(1) Every facility should be evaluated for potential adverse health and environmental effects. Based on this evaluation, instrumentation, sampling, monitoring, and inspection requirements should be established.

(2) Every facility which produces leachate in quantities and concentrations that could contaminate ground water in an aquifer should be required to monitor to detect and predict contamination.

(3) Inspectors should be trained and provided detailed instructions for checking on the procedures and conditions that are specified in the engineering plan and site permit. Provisions should be made to ensure chain of custody for evidence.

(c) Facility assessment and prescription of remedial measures should be carried out by adequately trained or experienced professional staff, including engineers and geologists.

(d) The State permit system should provide the administrative control to prohibit the establishment of new open dumps and to assist in meeting the requirement that all wastes be used or disposed in an environmentally sound manner.

(1) Permitting procedures for new facilities should require applicants to demonstrate that the facility will comply with the criteria.

(2) The permit system should specify, for the facility operator, the location, design, construction, operational, monitoring, reporting, completion and maintenance requirements.

(3) Permit procedures should include provisions to ensure that future use of the property on which the facility is located is compatible with that property's use as a solid waste disposal facility. These procedures should include identification of future land use or the inclusion of a stipulation in the property deed which notifies future purchasers of precautions necessitated by the use of the property as a solid waste disposal facility.

(4) Permits should only be issued to facilities that are consistent with the State plan, or with substate plans developed under the State plan.

(e) The enforcement system should be designed to include both administrative procedures and judicial remedies to enforce the compliance schedules and closure procedures for open dumps.

(1) Permits, surveillance, and enforcement system capabilities should be designed for supporting court action.

(2) Detection capabilities and penalties for false reporting should be provided for.

### § 256.23 Requirements for closing or upgrading open dumps.

In meeting the requirement of section 4003(3) for closing or upgrading open dumps:

(a) The State plan shall provide for the classification of existing solid waste disposal facilities according to the criteria. This classification shall be submitted to EPA, and facilities classified as open dumps shall be published in the inventory of open dumps.

(b) The State plan shall provide for an orderly time-phasing of the disposal facility classifications described in paragraph (a) of this section. The determination of priorities for the classification of disposal facilities shall be based upon:

(1) The potential health and environmental impact of the solid waste disposal facility;

(2) The availability of State regulatory and enforcement powers; and

(3) The availability of Federal and State resources for this purpose.

(c) For each facility classified as an open dump the State shall take steps to close or upgrade the facility. Evidence of that action shall be incorporated by reference into the annual work program and be made publicly available. When the State's actions concerning open dumps are modified, the changes shall be referenced in subsequent annual work programs.

(d) In providing for the closure of open dumps the State shall take steps necessary to eliminate health hazards and minimize potential health hazards. These steps shall include requirements for long-term monitoring or contingency plans where necessary.

### § 256.24 Recommendations for closing or upgrading open dumps.

(a) All sources of information available to the State should be used to aid in the classification of facilities.

Records of previous inspections and monitoring, as well as new inspections and new monitoring, should be considered.

(b) The steps to close or upgrade open dumps established under §256.23(c) should be coordinated with the facility needs assessment described in §256.41.

(c) A determination should be made of the feasibility of resource recovery or resource conservation to reduce the solid waste volume entering a facility classified as an open dump; and feasible measures to achieve that reduction should be implemented.

(d) At the time of classification of existing solid waste disposal facilities pursuant to §256.23, the State should consider developing appropriate timetables or schedules by which any responsible party can be brought into compliance with the open dumping prohibition pursuant to §§256.26 and 256.27.

[44 FR 45079, July 31, 1979, as amended at 46 FR 47051, Sept. 23, 1981]

### §256.25 Recommendation for inactive facilities.

Inactive facilities that continue to produce adverse health or environmental effects should be evaluated according to the criteria. The State plan should provide for measures to ensure that adverse health or environmental effects from inactive facilities are minimized or eliminated. Such measures may include actions by disposal facility owners and operators, notification of the general public, adjacent residents and other affected parties and notification of agencies responsible for public health and safety.

### §256.26 Requirement for schedules leading to compliance with the prohibition of open dumping.

In implementing the section 4005(c) prohibition on open dumping, the State plan shall provide that any entity which demonstrates that it has considered other public or private alternatives to comply with the prohibition on open dumping and is unable to utilize such alternatives to so comply, may obtain a timetable or schedule for compliance which specifies a schedule of remedial measures, and an enforceable sequence of actions, leading to compliance within a reasonable time (not to exceed 5 years from the date of publication of the inventory).

### §256.27 Recommendation for schedules leading to compliance with the prohibition of open dumping.

In reviewing applications for compliance schedules under §256.26, the State should consider the availability of processing and disposal facilities, the likelihood of environmental damage from disposal at available facilities, the existence of State or substate requirements (including other compliance schedules) applicable to available facilities, cost constraints, existing contractual agreements and other pertinent factors.

## Subpart D—Resource Conservation and Resource Recovery Programs

### §256.30 Requirements.

(a) In order to comply with sections 4003(2) and (6) as they pertain to resource conservation and recovery, the State plan shall provide for a policy and strategy for encouragement of resource recovery and conservation activities.

(b) In order to comply with section 4003(5), the State plan shall provide that no local government within the State is prohibited under State or local law from entering into long-term contracts for the supply of solid waste to resource recovery facilities.

### §256.31 Recommendations for developing and implementing resource conservation and recovery programs.

(a) In order to encourage resource recovery and conservation, the State plan should provide for technical assistance, training, information development and dissemination, financial support programs, market studies and market development programs.

(b) In order to comply with the requirement of §256.30(b) regarding long-term contract prohibitions, the State plan should provide for:

(1) Review of existing State and local laws and regulations pertinent to contracting for resource recovery services or facilities.

(2) Reporting of all laws and regulations found to be in violation of this requirement to the executive officer of the administrative agency responsible for the statute.

(3) Development of an administrative order or a revised law or regulation or any other preliminary step for the removal or amending of a law or regulation in violation of this requirement.

(4) Development of a strategy for the consideration of the legislature to prohibit and/or remove from State or local law provisions in violation of this requirement.

(c) The State plan should aid and encourage State procurement of products containing recovered materials in accord with section 6002 of the Act. To assist this effort, the State plan should provide for:

(1) The development of a policy statement encouraging the procurement of recovered materials, wherever feasible;

(2) The identification of the key purchasing agencies of the State, along with potential uses of recovered materials by these agencies; and,

(3) The development of a plan of action to promote the use of recovered materials through executive order, legislative initiative, or other action that the State deems necessary.

(d) In order to encourage resource recovery and conservation, the State plan should provide for the elimination, to the extent possible, of restrictions on the purchase of goods or services, especially negotiated procurements, for resource recovery facilities. This should include:

(1) Review of existing State and local laws pertinent to the procurement of equipment and services for the design, construction and operation of resource recovery facilities;

(2) Listing of all laws that limit the ability of localities to negotiate for the procurement of the design, construction, or operation of resource recovery facilities;

(3) Development of administrative orders or legislation or other action that would eliminate these restrictions; and

(4) Development of a strategy and plan of action for the consideration of the legislature for execution of administrative orders or other action that would eliminate these restrictions.

(e) The State plan should encourage the development of resource recovery and resource conservation facilities and practices as the preferred means of solid waste management whenever technically and economically feasible. The State plan should provide for the following activities:

(1) The composition of wastes should be analyzed with particular emphasis on recovery potential for material and energy, including fuel value, percentages of recoverable industrial wastes, grades of wastepaper, glass, and nonferrous and ferrous metals.

(2) Available and potential markets for recovered materials and energy should be identified, including markets for recoverable industrial wastes; wastepapers; ferrous and non-ferrous metals; glass; solid, liquid, or gaseous fuels; sludges; and tires. The following should be evaluated: location and transportation requirements, materials and energy specifications of user industries, minimum quantity requirements, pricing mechanisms and long-term contract availability.

(3) Resource recovery feasibility studies should be conducted in regions of the State in which uses or markets for recovered materials or energy are identified. These studies should review various technological approaches, environmental considerations, institutional and financial constraints, and economic feasibility.

(4) Source separation, recycling and resource conservation should be utilized whenever technically and economically feasible.

(5) Mixed waste processing facilities for the recovery of energy and materials should be utilized whenever technically and economically feasible.

(6) Source separation, resource conservation and mixed waste processing capacity should be combined to achieve the most effective resource conservation and economic balance.

## Subpart E—Facility Planning and Implementation

### § 256.40 Requirements.

In order to comply with section 4003(6), the State plan shall provide for

adequate resource conservation, recovery, storage, treatment and disposal facilities and practices necessary to use or dispose of solid and hazardous waste in an environmentally sound manner.

### § 256.41 Recommendations for assessing the need for facilities.

(a) In meeting the requirement for adequate resource conservation, recovery, storage, treatment and disposal facilities and practices, the State plan should provide for an assessment of the adequacy of existing facilities and practices and the need for new or expanded facilities and practices.

(1) The needs assessment should be based on current and projected waste generation rates and on the capacities of presently operating and planned facilities.

(2) Existing and planned resource conservation and recovery practices and their impact on facility needs should be assessed.

(3) Current and projected movement of solid and hazardous waste across State and local boundaries should be assessed.

(4) Special handling needs should be determined for all solid waste categories.

(5) Impact on facility capacities due to predictable changes in waste quantities and characteristics should be estimated.

(6) Environmental, economic, and other constraints on continued operation of facilities should be assessed.

(7) Diversion of wastes due to closure of open dumps should be anticipated.

(8) Facilities and practices planned or provided for by the private sector should be assessed.

(b) The State plan should provide for the identification of areas which require new capacity development, based on the needs assessment.

### § 256.42 Recommendations for assuring facility development.

(a) The State plan should address facility planning and acquisition for all areas which are determined to have insufficient recovery, storage, treatment and disposal capacity in the assessment of facility needs.

(b) Where facilities and practices are found to be inadequate, the State plan should provide for the necessary facilities and practices to be developed by responsible State and substate agencies or by the private sector.

(c) For all areas found to have five or fewer years of capacity remaining, the State plan should provide for:

(1) The development of estimates of waste generation by type and characteristic,

(2) The evaluation and selection of resource recovery, conservation or disposal methods,

(3) Selection of sites for facilities, and

(4) Development of schedules of implementation.

(d) The State plan should encourage private sector initiatives in order to meet the identified facility needs.

(e) In any area having fewer than 2 years of projected capacity, the State plan should provide for the State to take action such as acquiring facilities or causing facilities to be acquired.

(f) The State plan should provide for the initiation and development of environmentally sound facilities as soon as practicable to replace all open dumps.

(g) The State plan should provide for the State, in cooperation with substate agencies, to establish procedures for choosing which facilities will get priority for technical or financial assistance or other emphasis. Highest priority should be given to facilities developed to replace or upgrade open dumps.

(h) The State plan should provide for substate cooperation and policies for free and unrestricted movement of solid and hazardous waste across State and local boundaries.

## Subpart F—Coordination With Other Programs

### § 256.50 Requirements.

Section 4003(1) requires the State solid waste managment plan to idenifty means for coordinating regional planning and implementation under the State plan. Section 1006 requires the Administrator to integrate all provisions of this Act (including approval of State plans) with other Acts that grant regulatory authority to the

Administrator in order to prevent duplication of administrative and enforcement efforts. In order to meet these requirements:

(a) The State solid waste management plan shall be developed in coordination with Federal, State, and substate programs for air quality, water quality, water supply, waste water treatment, pesticides, ocean protection, toxic substances control, noise control, and radiation control.

(b) The State plan shall provide for coordination with programs under section 208 of the Clean Water Act, as amended (33 U.S.C. 1288). In identifying agencies for solid waste management planning and implementation, the State shall review the solid waste management activities being conducted by water quality planning and management agencies designated under section 208 of the Clean Water Act. Where feasible, identification of such agencies should be considered during the identification of responsibilities under subpart B of this part. Where solid waste management and water quality agencies are separate entities, necessary coordination procedures shall be established.

(c) The State plan shall provide for coordination with the National Pollutant Discharge Elimination System (NPDES) established under section 402 of the Clean Water Act, as amended (33 U.S.C. 1342). The issuance of State facility permits and actions taken to close or upgrade open dumps shall be timed, where practicable, to coordinate closely with the issuance of a new or revised NPDES permit for such facility.

(d) The State plan shall provide for coordination with activities for municipal sewage sludge disposal and utilization conducted under the authority of section 405 of the Clean Water Act, as amended (33 U.S.C. 1345), and with the program for construction grants for publicly owned treatment works under section 201 of the Clean Water Act, as amended (33 U.S.C. 1281).

(e) The State plan shall provide for coordination with State pretreatment activities under section 307 of the Clean Water Act, as amended (33 U.S.C. 1317).

(f) The State plan shall provide for coordination with agencies conducting assessments of the impact of surface impoundments on underground sources of drinking water under the authority of section 1442(a)(8)(C) of the Safe Drinking Water Act (42 U.S.C. 300j–1).

(g) The State plan shall provide for coordination with State underground injection control programs (40 CFR Parts 122, 123, 124, and 146) carried out under the authority of the Safe Drinking Water Act (42 U.S.C. 300f *et seq.*) and with the designation of sole source aquifers under section 1424 of that Act.

(h) The State plan shall provide for coordination with State implementation plans developed under the Clean Air Act (42 U.S.C. 7401 *et seq.*; incineration and open burning limitations; and, State implementation plan requirements impacting resource recovery systems).

(i) The State plan shall provide for coordination with the Army Corps of Engineers permit program (or authorized State program) under section 404 of the Clean Water Act, as amended (33 U.S.C. 1344) for dredge and fill activities in waters of the United States.

(j) The State plan shall provide for coordination with the Office of Endangered Species, Department of the Interior, to ensure that solid waste management activities, especially the siting of disposal facilities, do not jeopardize the continued existence of an endangered or threated species nor result in the destruction or adverse modification of a critical habitat.

(k) The State plan shall provide for coordination, where practicable, with programs under:

(1) The Toxic Substances Control Act (15 U.S.C. 2601 *et seq.*; disposal of chemical substances and mixtures).

(2) The Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 1362 et seq.; disposal and storage of pesticides and pesticide containers).

(3) The Marine Protection, Research and Sanctuaries Act (33 U.S.C. 1420 *et seq.*; disposal in ocean waters).

(l) The State plan shall provide for coordination, where practicable, with programs of other Federal agencies, including:

(1) Department of the Interior.

(i) Fish and Wildlife Service (wetlands),

(ii) Bureau of Mines and Office of Surface Mining (mining waste disposal and use of sludge in reclamation),

(iii) U.S. Geological Survey (wetlands, floodplains, ground water);

(2) Department of Commerce, National Oceanic and Atmospheric Administration (coastal zone management plans);

(3) Water Resources Council (floodplains, surface and ground waters);

(4) Department of Agriculture, including Soil Conservation Service (land spreading solid waste on food chain croplands);

(5) Federal Aviation Administration (locating disposal facilities on or near airport property);

(6) Department of Housing and Urban Development (701 comprehensive planning program, flood plains mapping);

(7) Department of Defense (development and implementation of State and substate plans with regard to resource recovery and solid waste disposal programs at various installations);

(8) Department of Energy (State energy conservation plans under the Energy Policy and Conservation Act (42 U.S.C. 6321)); and

(9) Other programs.

(m) The State plan shall provide for coordination, where practicable, with solid waste management plans in neighboring States and with plans for Indian reservations in the State.

## Subpart G—Public Participation

### § 256.60 Requirements for public participation in State and substate plans.

(a) State and substate planning agencies shall:

(1) Maintain a current list of agencies, organizations, and individuals affected by or interested in the plan, which shall include any parties that request to be on the list, the owner or operator of each facility classified as an open dump and any other parties which the State determines to be affected by or interested in the plan;

(2) Provide depositories of relevant information in one or more convenient locations; and

(3) Prepare a responsiveness summary, in accord with 40 CFR 25.8, where required by this subpart or by an approved public participation work plan, which describes matters on which the public was consulted, summarizes the public's views, and sets forth the agency's response to the public input.

(b) State and substate planning agencies shall provide information and consult with the public on plan development and implementation. Provision of information and consultation shall occur both early in the planning process (including the preparation and distribution of a summary of the proposed plan) and on major policy decisions made during the course of plan development, revision and implementation. To meet this requirement, planning agencies shall:

(1) Publicize information in news media having broad audiences in the geographic area;

(2) Place information in depositories maintained under paragraph (a)(2) of this section;

(3) Send information directly to agencies, organizations and individuals on the list maintained under paragraph (a)(1) of this section; and

(4) Prepare and make available to the public a responsiveness summary in accord with 40 CFR 25.8.

(c) State and substate planning agencies shall conduct public hearings (and public meetings, where the agency determines there is sufficient interest) in accord with 40 CFR 25.5 and 25.6. The purpose of the hearings and meetings is to solicit reactions and recommendations from interested or affected parties and to explain major issues within the proposed plan. Following the public hearings, a responsiveness summary shall be prepared and made available to the public in accord with 40 CFR 25.8.

[44 FR 45079, July 31, 1979, as amended at 46 FR 47051, Sept. 23, 1981]

### § 256.61 Requirements for public participation in the annual State work program.

(a) A public participation work plan in accord with 40 CFR 25.11 shall be included in the annual State work program.

(b) The State shall consult with the public in the development of the annual work program. One month prior to submission of the draft work program to the Regional Administrator, as required by 40 CFR part 35, the draft work program shall be made available to the public at the State information depositories maintained under §256.60(a)(2). The public shall be notified of the availability of the draft work program, and a public meeting shall be held if the planning agency determines there is sufficient interest.

(c) The State shall comply with the requirements of Office of Management and Budget Circular No. A–95.

(d) Copies of the final work program shall be placed in the State information depositories maintained under §256.60(a)(2).

### §256.62 Requirements for public participation in State regulatory development.

(a) The State shall conduct public hearings (and public meetings where the State determines there is sufficient interest) on State legislation and regulations, in accord with the State administrative procedures act, to solicit reactions and recommendations. Following the public hearings, a responsiveness summary shall be prepared and made available to the public in accord with 40 CFR 25.8.

(b) In advance of the hearings and meetings required by paragraph (a) of this section, the State shall prepare a fact sheet on proposed regulations or legislation, mail the fact sheet to agencies, organizations and individuals on the list maintained under §256.60(a)(1) and place the fact sheet in the State information depositories maintained under §256.60(a)(2).

### §256.63 Requirements for public participation in the permitting of facilities.

(a) Before approving a permit application (or renewal of a permit) for a resource recovery or solid waste disposal facility the State shall hold a public hearing to solicit public reaction and recommendations on the proposed permit application if the State determines there is a significant degree of public interest in the proposed permit.

(b) This hearing shall be held in accord with 40 CFR 25.5.

### §256.64 Requirements for public participation in the open dump inventory.

(a) The State shall provide an opportunity for public participation prior to submission of any classification of a facility as an open dump to the Federal Government. The State shall accomplish this by providing notice as specified in §256.64(b) or by using other State administrative procedures which provide equivalent public participation.

(b) The State may satisfy the requirement of §256.64(a) by providing written notice of the availability of the results of its classifications to all parties on the list required under §256.60(a)(1) at least 30 days before initial submission of these classifications to the Federal Government. For those parties on the list required under §256.60(a)(1) who are owners or operators of facilities classified as open dumps, such notice shall indicate that the facility has been so classified.

[46 FR 47052, Sept. 23, 1981]

### §256.65 Recommendations for public participation.

(a) State and substate planning agencies should establish an advisory group, or utilize an existing group, to provide recommendations on major policy and program decisions. The advisory group's membership should reflect a balanced viewpoint in accord with 40 CFR 25.7(c).

(b) State and substate planning agencies should develop public education programs designed to encourage informed public participation in the development and implementation of solid waste management plans.

[44 FR 45079, July 31, 1979. Redesignated and amended at 46 FR 47052, Sept. 23, 1981]

# PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

## Subpart A—Classification of Solid Waste Disposal Facilities and Practices



## Subpart B—Disposal Standards for the Receipt of Conditionally Exempt Small Quantity Generator (CESQG) Wastes at Non-Municipal Non-Hazardous Waste Disposal Units



AUTHORITY: 42 U.S.C. 6907(a)(3), 6912(a)(1), 6944(a) and 6949(c), 33 U.S.C. 1345 (d) and (e).

SOURCE: 44 FR 53460, Sept. 13, 1979, unless otherwise noted.

## Subpart A—Classification of Solid Waste Disposal Facilities and Practices

### § 257.1 Scope and purpose.

(a) These criteria are for use under the Resource Conservation and Recovery Act (the Act) in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment. Unless otherwise provided, these criteria are adopted for purposes of both sections 1008(a)(3) and 4004(a) of the Act.

(1) Facilities failing to satisfy criteria adopted for purposes of section 4004(a) will be considered open dumps for purposes of State solid waste management planning under the Act.

(2) Practices failing to satisfy criteria adopted for purposes of section 1008(a)(3) constitute open dumping, which is prohibited under section 4005 of the Act.

(b) These criteria also provide guidelines for the disposal of sewage sludge on the land when the sewage sludge is not used or disposed through a practice regulated in 40 CFR part 503.

(c) These criteria apply to all solid waste disposal facilities and practices with the following exceptions:

(1) The criteria do not apply to agricultural wastes, including manures and crop residues, returned to the soil as fertilizers or soil conditioners.

(2) The criteria do not apply to overburden resulting from mining operations intended for return to the mine site.

(3) The criteria do not apply to the land application of domestic sewage or treated domestic sewage.

(4) The criteria do not apply to the location and operation of septic tanks. The criteria do, however, apply to the disposal of septic tank pumpings.

(5) The criteria do not apply to solid or dissolved materials in irrigation return flows.

(6) The criteria do not apply to industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, as amended.

(7) The criteria do not apply to source, special nuclear or byproduct material as defined by the Atomic Energy Act, as amended (68 Stat. 923).

(8) The criteria do not apply to hazardous waste disposal facilities which are subject to regulation under subtitle C of the Act.

(9) The criteria do not apply to disposal of solid waste by underground well injection subject to the regulations (40 CFR part 146) for the Underground Injection Control Program (UICP) under the Safe Drinking Water Act, as amended, 42 U.S.C. 3007 *et seq*.

(10) The criteria of this part do not apply to municipal solid waste landfill units, which are subject to the revised criteria contained in part 258 of this chapter.

(11) The criteria do not apply to the use or disposal sewage sludge on the land when the sewage sludge is used or disposed in accordance with 40 CFR part 503.

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981; 56 FR 51016, Oct. 9, 1991; 58 FR 9385, Feb. 19, 1993]

EFFECTIVE DATE NOTE: At 61 FR 34269, July 1, 1996, in §257.1, paragraph (a) was revised, effective Jan. 1, 1998. For the convenience of the user, the revised text is set forth below.

### §257.1 Scope and purpose.

(a) Unless otherwise provided, the criteria in §§257.1 through 257.4 are adopted for determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act (The Act). Unless otherwise provided, the criteria in §§257.5 through 257.30 are adopted for purposes of ensuring that non-municipal non-hazardous waste disposal units that receive conditionally exempt small quantity generator (CESQG) waste do not present risks to human health and the environment taking into account the practicable capability of such units in accordance with Section 4010(c) of the Act.

(1) Facilities failing to satisfy either the criteria in §§257.1 through 257.4 or §§257.5 though 257.30 are considered open dumps, which are prohibited under section 4005 of the Act.

(2) Practices failing to satisfy either the criteria in §§257.1 through 257.4 or §§257.5 through 257.30 constitute open dumping, which is prohibited under section 4005 of the Act.

* * * * *

### §257.2 Definitions.

The definitions set forth in section 1004 of the Act apply to this part. Special definitions of general concern to this part are provided below, and definitions especially pertinent to particular sections of this part are provided in those sections.

*Disposal* means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

*Domestic septage* is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

*Facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

*Land application unit* means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

*Landfill* means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

*Leachate* means liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials removed from such wastes.

*Municipal solid waste landfill (MSWLF) unit* means a discrete area of land or an

excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined in this section. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, and industrial solid waste. Such a landfill may be publicly or privately owned. An MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

*Open dump* means a facility for the disposal of solid waste which does not comply with this part.

*Practice* means the act of disposal of solid waste.

*Sanitary landfill* means a facility for the disposal of solid waste which complies with this part.

*Sewage sludge* means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

*Sludge* means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect.

*Solid waste* means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

*State* means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

*Surface impoundment* or *impoundment* means a facility or part of a facility that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well. Examples of surface impoundments are holding storage, settling, and aeration pits, ponds, and lagoons.

*Waste pile* or *pile* means any noncontainerized accumulation of solid, nonflowing waste that is used for treatment or storage.

[44 FR 53460, Sept. 13, 1979; 44 FR 58910, Oct. 12, 1979; 56 FR 51016, Oct. 9, 1991; 58 FR 9385, Feb. 19, 1993]

## § 257.3 Criteria for classification of solid waste disposal facilities and practices.

Solid waste disposal facilities or practices which violate any of the following criteria pose a reasonable probability of adverse effects on health or the environment:

### § 257.3–1 Floodplains.

(a) Facilities or practices in floodplains shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human life, wildlife, or land or water resources.

(b) As used in this section:

(1) *Based flood* means a flood that has a 1 percent or greater chance of recurring in any year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

(2) *Floodplain* means the lowland and relatively flat areas adjoining inland

and coastal waters, including flood-prone areas of offshore islands, which are inundated by the base flood.

(3) *Washout* means the carrying away of solid waste by waters of the base flood.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

### § 257.3–2 Endangered species.

(a) Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife.

(b) The facility or practice shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR part 17.

(c) As used in this section:

(1) *Endangered or threatened species* means any species listed as such pursuant to section 4 of the Endangered Species Act.

(2) *Destruction or adverse modification* means a direct or indirect alteration of critical habitat which appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using that habitat.

(3) *Taking* means harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing, or collecting or attempting to engage in such conduct.

### § 257.3–3 Surface water.

(a) For purposes of section 4004(a) of the Act, a facility shall not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES) under section 402 of the Clean Water Act, as amended.

(b) For purposes of section 4004(a) of the Act, a facility shall not cause a discharge of dredged material or fill material to waters of the United States that is in violation of the requirements under section 404 of the Clean Water Act, as amended.

(c) A facility or practice shall not cause non-point source pollution of waters of the United States that violates applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by the Administrator under section 208 of the Clean Water Act, as amended.

(d) Definitions of the terms ''Discharge of dredged material'', ''Point source'', ''Pollutant'', ''Waters of the United States'', and ''Wetlands'' can be found in the Clean Water Act, as amended, 33 U.S.C. 1251 *et seq.*, and implementing regulations, specifically 33 CFR part 323 (42 FR 37122, July 19, 1977).

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

### § 257.3–4 Ground water.

(a) A facility or practice shall not contaminate an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary specified in accordance with paragraph (b) of this section.

(b)(1) For purposes of section 1008(a)(3) of the Act or section 405(d) of the CWA, a party charged with open dumping or a violation of section 405(e) with respect to sewage sludge that is not used or disposed through a practice regulated in 40 CFR part 503 may demonstrate that compliance should be determined at an alternative boundary in lieu of the solid waste boundary. The court shall establish an alternative boundary only if it finds that such a change would not result in contamination of ground water which may be needed or used for human consumption. This finding shall be based on analysis and consideration of all of the following factors that are relevant:

(i) The hydrogeological characteristics of the facility and surrounding land, including any natural attenuation and dilution characteristics of the aquifer;

(ii) The volume and physical and chemical characteristics of the leachate;

(iii) The quantity, quality, and direction of flow of ground water underlying the facility;

(iv) The proximity and withdrawal rates of ground-water users;

(v) The availability of alternative drinking water supplies;

(vi) The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water;

(vii) Public health, safety, and welfare effects.

(2) For purposes of sections 4004(a) and 1008(a)(3), the State may establish an alternative boundary for a facility to be used in lieu of the solid waste boundary only if it finds that such a change would not result in the contamination of ground water which may be needed or used for human consumption. Such a finding shall be based on an analysis and consideration of all of the factors identified in paragraph (b)(1) of this section that are relevant.

(c) As used in this section:

(1) *Aquifer* means a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of ground water to wells or springs.

(2) *Contaminate* means introduce a substance that would cause:

(i) The concentration of that substance in the ground water to exceed the maximum contaminant level specified in appendix I, or

(ii) An increase in the concentration of that substance in the ground water where the existing concentration of that substance exceeds the maximum contaminant level specified in appendix I.

(3) *Ground water* means water below the land surface in the zone of saturation.

(4) *Underground drinking water source* means:

(i) An aquifer supplying drinking water for human consumption, or

(ii) An aquifer in which the ground water contains less than 10,000 mg/1 total dissolved solids.

(5) *Solid waste boundary* means the outermost perimeter of the solid waste (projected in the horizontal plane) as it would exist at completion of the disposal activity.

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981; 58 FR 9386, Feb. 19, 1993]

### § 257.3–5 Application to land used for the production of food-chain crops (interim final).

(a) *Cadmium.* A facility or practice concerning application of solid waste to within one meter (three feet) of the surface of land used for the production of food-chain crops shall not exist or occur, unless in compliance with all requirements of paragraphs (a)(1) (i) through (iii) of this section or all requirements of paragraphs (a)(2) (i) through (iv) of this section.

(1)(i) The pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, except for solid waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less.

(ii) The annual application of cadmium from solid waste does not exceed 0.5 kilograms per hectare (kg/ha) on land used for production of tobacco, leafy vegetables or root crops grown for human consumption. For other food-chain crops, the annual cadmium application rate does not exceed:

| Time period | Annual Cd application rate (kg/ha) |
|---|---|
| Present to June 30, 1984 | 2.0 |
| July 1, 1984 to December 31, 1986 | 1.25 |
| Beginning January 1, 1987 | 0.5 |

(iii) The cumulative application of cadmium from solid waste does not exceed the levels in either paragraph (a)(1)(iii)(A) or (B) of this section.

(A)

| Soil cation exchange capacity (meq/100g) | Maximum cumulative application (kg/ha) | |
|---|---|---|
| | Background soil pH less than 6.5 | Background soil pH more than 6.5 |
| Less than 5 | 5 | 5 |
| 5 to 15 | 5 | 10 |
| More than 15 | 5 | 20 |

(B) For soils with a background pH of less than 6.5, the cumulative cadmium application rate does not exceed the levels below: *Provided,* That the pH of the solid waste and soil mixture is adjusted to and maintained at 6.5 or greater whenever food-chain crops are grown.

| Soil cation exchange capacity (meq/100g) | Maximum cumulative application (kg/ha) |
|---|---|
| Less than 5 | 5 |
| 5 to 15 | 10 |
| More than 15 | 20 |

(2)(i) The only food-chain crop produced is animal feed.

(ii) The pH of the solid waste and soil mixture is 6.5 or greater at the time of solid waste application or at the time the crop is planted, whichever occurs later, and this pH level is maintained whenever food-chain crops are grown.

(iii) There is a facility operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The facility operating plan describes the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses.

(iv) Future property owners are notified by a stipulation in the land record or property deed which states that the property has received solid waste at high cadmium application rates and that food-chain crops should not be grown, due to a possible health hazard.

(b) *Polychlorinated Biphenyls (PCBs).* Solid waste containing concentrations of PCBs equal to or greater than 10 mg/kg (dry weight) is incorporated into the soil when applied to land used for producing animal feed, including pasture crops for animals raised for milk. Incorporation of the solid waste into the soil is not required if it is assured that the PCB content is less than 0.2 mg/kg (actual weight) in animal feed or less than 1.5 mg/kg (fat basis) in milk.

(c) As used in this section:

(1) *Animal feed* means any crop grown for consumption by animals, such as pasture crops, forage, and grain.

(2) *Background soil pH* means the pH of the soil prior to the addition of substances that alter the hydrogen ion concentration.

(3) *Cation exchange capacity* means the sum of exchangeable cations a soil can absorb expressed in milli-equivalents per 100 grams of soil as determined by sampling the soil to the depth of cultivation or solid waste placement, whichever is greater, and analyzing by the summation method for distinctly acid soils or the sodium acetate method for neutral, calcareous or saline soils (''Methods of Soil Analysis, Agronomy Monograph No. 9.'' C. A. Black, ed., American Society of Agronomy, Madison, Wisconsin. pp 891–901, 1965).

(4) *Food-chain crops* means tobacco, crops grown for human consumption, and animal feed for animals whose products are consumed by humans.

(5) *Incorporated into the soil* means the injection of solid waste beneath the surface of the soil or the mixing of solid waste with the surface soil.

(6) *Pasture crops* means crops such as legumes, grasses, grain stubble and stover which are consumed by animals while grazing.

(7) *pH* means the logarithm of the reciprocal of hydrogen ion concentration.

(8) *Root crops* means plants whose edible parts are grown below the surface of the soil.

(9) *Soil pH* is the value obtained by sampling the soil to the depth of cultivation or solid waste placement, whichever is greater, and analyzing by the electrometric method. (''Methods of Soil Analysis, Agronomy Monograph No. 9,'' C.A. Black, ed., American Society of Agronomy, Madison, Wisconsin, pp. 914–926, 1965.)

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

### § 257.3–6 Disease.

(a) *Disease Vectors.* The facility or practice shall not exist or occur unless the on-site population of disease vectors is minimized through the periodic application of cover material or other techniques as appropriate so as to protect public health.

(b) *Sewage sludge and septic tank pumpings (Interim Final).* A facility or practice involving disposal of sewage sludge or septic tank pumpings shall not exist or occur unless in compliance with paragraphs (b) (1), (2) or (3) of this section.

(1) Sewage sludge that is applied to the land surface or is incorporated into the soil is treated by a Process to Significantly Reduce Pathogens prior to application or incorporation. Public access to the facility is controlled for at least 12 months, and grazing by animals whose products are consumed by humans is prevented for at least one month. Processes to Significantly Reduce Pathogens are listed in appendix II, section A. (These provisions do not apply to sewage sludge disposed of by a trenching or burial operation.)

(2) Septic tank pumpings that are applied to the land surface or incorporated into the soil are treated by a Process to Significantly Reduce Pathogens (as listed in appendix II, section A), prior to application or incorporation, unless public access to the facility is controlled for at least 12 months and unless grazing by animals whose products are consumed by humans is prevented for at least one month. (These provisions do not apply to septic tank pumpings disposed of by a trenching or burial operation.)

(3) Sewage sludge or septic tank pumpings that are applied to the land surface or are incorporated into the soil are treated by a Process to Further Reduce Pathogens, prior to application or incorporation, if crops for direct human consumption are grown within 18 months subsequent to application or incorporation. Such treatment is not required if there is no contact between the solid waste and the edible portion of the crop; however, in this case the solid waste is treated by a Process to Significantly Reduce Pathogens, prior to application; public access to the facility is controlled for at least 12 months; and grazing by animals whose products are consumed by humans is prevented for at least one month. If crops for direct human consumption are not grown within 18 months of application or incorporation, the requirements of paragraphs (b) (1) and (2) of this section apply. Processes to Further Reduce Pathogens are listed in appendix II, section B.

(c) As used in this section:

(1) *Crops for direct human consumption* means crops that are consumed by humans without processing to minimize pathogens prior to distribution to the consumer.

(2) *Disease vector* means rodents, flies, and mosquitoes capable of transmitting disease to humans.

(3) *Incorporated into the soil* means the injection of solid waste beneath the surface of the soil or the mixing of solid waste with the surface soil.

(4) *Periodic application of cover material* means the application and compaction of soil or other suitable material over disposed solid waste at the end of each operating day or at such frequencies and in such a manner as to reduce the risk of fire and to impede vectors access to the waste.

(5) *Trenching or burial operation* means the placement of sewage sludge or septic tank pumpings in a trench or other natural or man-made depression and the covering with soil or other suitable material at the end of each operating day such that the wastes do not migrate to the surface.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

### § 257.3–7 Air.

(a) The facility or practice shall not engage in open burning of residential, commercial, institutional or industrial solid waste. This requirement does not apply to infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, land-clearing debris, diseased trees, debris from emergency clean-up operations, and ordnance.

(b) For purposes of section 4004(a) of the Act, the facility shall not violate applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

(c) As used in this section ''open burning'' means the combustion of solid waste without (1) control of combustion air to maintain adequate temperature for efficient combustion, (2) containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and (3) control of the emission of the combustion products.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

### § 257.3–8 Safety.

(a) *Explosive gases.* The concentration of explosive gases generated by the facility or practice shall not exceed:

(1) Twenty-five percent (25%) of the lower explosive limit for the gases in facility structures (excluding gas control or recovery system components); and

(2) The lower explosive limit for the gases at the property boundary.

(b) *Fires.* A facility or practice shall not pose a hazard to the safety of persons or property from fires. This may be accomplished through compliance with §257.3–7 and through the periodic application of cover material or other techniques as appropriate.

(c) *Bird hazards to aircraft.* A facility or practice disposing of putrescible wastes that may attract birds and which occurs within 10,000 feet (3,048 meters) of any airport runway used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway used by only piston-type aircraft shall not pose a bird hazard to aircraft.

(d) *Access.* A facility or practice shall not allow uncontrolled public access so as to expose the public to potential health and safety hazards at the disposal site.

(e) As used in this section:

(1) *Airport* means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

(2) *Bird hazard* means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

(3) *Explosive gas* means methane ($CH_4$).

(4) *Facility structures* means any buildings and sheds or utility or drainage lines on the facility.

(5) *Lower explosive limit* means the lowest percent by volume of a mixture of explosive gases which will propagate a flame in air at 25 °C and atmospheric pressure.

(6) *Periodic application of cover material* means the application and compaction of soil or other suitable material over disposed solid waste at the end of each operating day or at such frequencies and in such a manner as to reduce the risk of fire and to impede disease vectors' access to the waste.

(7) *Putrescible wastes* means solid waste which contains organic matter capable of being decomposed by microorganisms and of such a character and proportion as to be capable of attracting or providing food for birds.

### §257.4 Effective date.

These criteria become effective October 15, 1979.

## Subpart B—Disposal Standards for the Receipt of Conditionally Exempt Small Quantity Generator (CESQG) Wastes at Non-Municipal Non-Hazardous Waste Disposal Units

SOURCE: 61 FR 34269, July 1, 1996, unless otherwise noted.

EFFECTIVE DATE NOTE: At 61 FR 34269, July 1, 1996, subpart B to part 257 was added, effective Jan. 1, 1998, with the exception of §§257.21–257.28, which will become effective July 1, 1998, and §§257.24, 257.25, and 257.27, which contain information collection and recordkeeping requirements and are pending OMB approval.

### §257.5 Disposal standards for owners/operators of non-municipal non-hazardous waste disposal units that receive Conditionally Exempt Small Quantity Generator (CESQG) waste.

(a) *Applicability.* (1) The requirements in this section apply to owners/operators of any non-municipal non-hazardous waste disposal unit that receives CESQG hazardous waste, as defined in 40 CFR 261.5. Non-municipal non-hazardous waste disposal units that meet the requirements of this section may receive CESQG wastes. Any owner/operator of a non-municipal non-hazardous waste disposal unit that receives CESQG hazardous waste continues to be subject to the requirements in §§257.3–2, 257.3–3, 257.3–5, 257.3–6, 257.3–7, and 257.3–8 (a), (b), and (d).

(2) Any non-municipal non-hazardous waste disposal unit that is receiving CESQG hazardous waste as of January 1, 1998, must be in compliance with the requirements in §§257.7 through 257.13 and §257.30 by January 1, 1998, and the requirements in §§257.21 through 257.28 by July 1, 1998.

(3) Any non-municipal non-hazardous waste disposal unit that does not meet the requirements in this section may not receive CESQG wastes.

(4) Any non-municipal non-hazardous waste disposal unit that is not receiving CESQG Hazardous waste as of January 1, 1998, continues to be subject to the requirements in §§257.1 through 257.4.

(5) Any non-municipal non-hazardous waste disposal unit that first receives CESQG hazardous waste after January

1, 1998, must be in compliance with §§ 257.7 through 257.30 prior to the receipt of CESQG hazardous waste.

(b) *Definitions.*

*Active life* means the period of operation beginning with the initial receipt of solid waste and ending at the final receipt of solid waste.

*Existing unit* means any non-municipal non-hazardous waste disposal unit that is receiving CESQG hazardous waste as of January 1, 1998.

*Facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of non-municipal non-hazardous waste.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing non-municipal non-hazardous waste disposal unit.

*New unit* means any non-municipal non-hazardous waste disposal unit that has not received CESQG hazardous waste prior to January 1, 1998.

*State* means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands, and Indian Tribes.

*State Director* means the chief administrative officer of the lead State/Tribal agency responsible for implementing the State/Tribal permit program for Subtitle D regulated facilities.

*Uppermost aquifer* means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

*Waste management unit boundary* means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

LOCATION RESTRICTIONS

### § 257.7 [Reserved]

### § 257.8 Floodplains.

(a) Owners or operators of new units, existing units, and lateral expansions located in 100-year floodplains must demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) For purposes of this section:

(1) *Floodplain* means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, that are inundated by the 100-year flood.

(2) *100-year flood* means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

(3) *Washout* means the carrying away of solid waste by waters of the base flood.

### § 257.9 Wetlands.

(a) Owners or operators of new units and lateral expansions shall not locate such units in wetlands, unless the owner or operator can make the following demonstrations to the Director of an approved State:

(1) Where applicable under section 404 of the Clean Water Act or applicable State wetlands laws, the presumption that a practicable alternative to the proposed landfill is available which does not involved wetlands is clearly rebutted:

(2) The construction and operation of the unit will not:

(i) Cause or contribute to violations of any applicable State water quality standard;

(ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;

(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(iv) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(3) The unit will not cause or contribute to significant degradation of wetlands. The owner/operator must demonstrate the integrity of the unit and its ability to protect ecological resources by addressing the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the unit;

(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the unit;

(iii) The volume and chemical nature of the waste managed in the unit;

(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the waste;

(v) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(4) To the extent required under section 404 of the Clean Water Act or applicable State wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by paragraph (a)(1) of this section, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasonable determination with respect to these demonstrations.

(b) For purposes of this section, wetlands means those areas that are defined in 40 CFR 232.2(r).

### §§ 257.10–257.12 [Reserved]

### § 257.13 Deadline for making demonstrations.

Existing units that cannot make the demonstration specified in §257.8(a) pertaining to floodplains by January 1, 1998, must not accept CESQG hazardous waste for disposal.

## GROUND-WATER MONITORING AND CORRECTIVE ACTION

### § 257.21 Applicability.

(a) The requirements in this section apply to units identified in §257.5(a), except as provided in paragraph (b) of this section.

(b) Ground-water monitoring requirements under §§257.22 through 257.25 may be suspended by the Director of an approved State for a unit identified in §257.5(a) if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that unit to the uppermost aquifer during the active life of the unit plus 30 years. This demonstration must be certified by a qualified ground-water scientist and approved by the Director of an approved State, and must be based upon:

(1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

(c) Owners and operators of facilities identified in §257.5(a) must comply with the ground-water monitoring requirements of this section according to the following schedule unless an alternative schedule is specified under paragraph (d) of this section:

(1) Existing units and lateral expansions must be in compliance with the ground-water monitoring requirements specified in §§257.22 through 257.25 by July 1, 1998.

(2) New units identified in §257.5(a) must be in compliance with the ground-water monitoring requirements specified in §§257.22 through 257.25 before waste can be placed in the unit.

(d) The Director of an approved State may specify an alternative schedule for the owners or operators of existing units and lateral expansions to comply with the ground-water monitoring requirements specified in §§257.22 through 257.25. This schedule must ensure that 50 percent of all existing units are in compliance by July 1, 1998, and all existing units are in compliance by July 1, 1999. In setting the

compliance schedule, the Director of an approved State must consider potential risks posed by the unit to human health and the environment. The following factors should be considered in determining potential risk:

(1) Proximity of human and environmental receptors;

(2) Design of the unit;

(3) Age of the unit;

(4) The size of the unit; and

(5) Resource value of the underlying aquifer, including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users; and

(iii) Ground-water quality and quantity.

(e) Once established at a unit, ground-water monitoring shall be conducted throughout the active life plus 30 years. The Director of an approved State may decrease the 30 year period if the owner/operator demonstrates that a shorter period of time is adequate to protect human health and the environment and the Director approves the demonstration.

(f) For the purposes of this section, a qualified ground-water scientist is a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in ground-water hydrology and related fields as may be demonstrated by State registration, professional Certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding ground-water monitoring, contaminant fate and transport, and corrective-action.

(g) The Director of an approved State may establish alternative schedules for demonstrating compliance with §257.22(d)(2), pertaining to notification of placement of certification in operating record; §257.24(c)(1), pertaining to notification that statistically significant increase (SSI) notice is in operating record; §257.24(c) (2) and (3), pertaining to an assessment monitoring program; §257.25(b), pertaining to sampling and analyzing appendix II of Part 258 constituents; §257.25(d)(1), pertaining to placement of notice (appendix II of 40 CFR part 258 constituents detected) in record and notification of notice in record; §257.25(d)(2), pertaining to sampling for appendix I and II of 40 CFR Part 258; §257.25(g), pertaining to notification (and placement of notice in record) of SSI above ground-water protection standard; §§257.25(g)(1)(iv) and 257.26(a), pertaining to assessment of corrective measures; §257.27(a), pertaining to selection of remedy and notification of placement in record; §257.28(c)(4), pertaining to notification of placement in record (alternative corrective action measures); and §257.28(f), pertaining to notification of placement in record (certification of remedy completed).

(h) Directors of approved States can use the flexibility in paragraph (i) of this section for any non-municipal non-hazardous waste disposal unit that receives CESQG waste, if the non-municipal non-hazardous waste disposal unit:

(1) Disposes of less than 20 tons of non-municipal waste daily, based on an annual average; and

(2) Has no evidence of ground-water contamination; and either

(3) Serves a community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility; or

(4) Serves a community that has no practicable waste management alternative and the non-municipal solid waste disposal facility is located in an area that annually receives less than or equal to 25 inches of precipitation.

(5) Owners/operators of any non-municipal non-hazardous waste disposal unit that meets the criteria in paragraph (h) of this section must place in the operating record information demonstrating this.

(i) Directors of approved States may allow any non-municipal non-hazardous waste disposal unit meeting the criteria in paragraph (h) of this section to:

(1) Use alternatives to the ground-water monitoring system prescribed in §§257.22 through 257.25 so long as the alternatives will detect and, if necessary, assess the nature or extent of contamination from the non-municipal non-hazardous waste disposal unit on a site-specific basis; or establish and use,

on a site-specific basis, an alternative list of indicator parameters for some or all of the constituents listed in appendix I (Appendix I of 40 CFR Part 258. Alternative indicator parameters approved by the Director of an approved State under this section must ensure detection of contamination from the non-municipal non-hazardous waste disposal unit.

(2) If contamination is detected through the use of any alternative to the ground-water monitoring system prescribed in §§ 257.22 through 257.25, the non-municipal non-hazardous waste disposal unit owner or operator must perform expanded monitoring to determine whether the detected contamination is an actual release from the non-municipal solid waste disposal unit and, if so, to determine the nature and extent of the contamination. The Director of the approved State shall establish a schedule for the non-municipal non-hazardous waste disposal unit owner or operator to submit results from expanded monitoring in a manner that ensures protection of human health and the environment.

(i) If expanded monitoring indicates that contamination from the non-municipal non-hazardous waste disposal unit has reached the saturated zone, the owner or operator must install ground-water monitoring wells and sample these wells in accordance with §§ 257.22 through 257.25.

(ii) If expanded monitoring indicates that contamination from the non-municipal non-hazardous waste disposal unit is present in the unsaturated zone or on the surface, the Director of an approved State shall establish a schedule for the owner or operator to submit a description of any necessary corrective measures. The schedule shall ensure corrective measures, where necessary, are undertaken in a timely manner that protects human health and the environment. The proposed corrective measures are subject to revision and approval by the Director of the approved State. The owner or operator must implement the corrective measures according to a schedule established by the Director of the approved State.

(3) When considering whether to allow alternatives to a ground-water monitoring system prescribed in §§ 257.22 through 257.25, including alternative indicator parameters, the Director of an approved State shall consider at least the following factors:

(i) The geological and hydrogeological characteristics of the site;

(ii) The impact of manmade and natural features on the effectiveness of an alternative technology;

(iii) Climatic factors that may influence the selection, use, and reliability of alternative ground-water monitoring procedures; and

(iv) The effectiveness of indicator parameters in detecting a release.

(4) The Director of an approved State can require an owner or operator to comply with the requirements of §§ 257.22 through 257.25, where it is determined by the Director that using alternatives to ground-water monitoring approved under this paragraph are inadequate to detect contamination and, if necessary, to assess the nature and extent of contamination.

### § 257.22 Ground-water monitoring systems.

(a) A ground-water monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer (as defined in § 257.5(b)) that:

(1) Represent the quality of background ground water that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(i) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background ground-water quality that is as representative or more representative than that provided by the upgradient wells; and

(2) Represent the quality of ground water passing the relevant point of compliance specified by the Director of

an approved State or at the waste management unit boundary in an unapproved State. The downgradient monitoring system must be installed at the relevant point of compliance specified by the Director of an approved State or at the waste management unit boundary in an unapproved State that ensures detection of ground-water contamination in the uppermost aquifer. The relevant point of compliance specified by the Director of an approved State shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the facility. In determining the relevant point of compliance the State Director shall consider at least the following factors: the hydrogeologic characteristics of the unit and surrounding land, the volume and physical and chemical characteristics of the leachate, the quantity, quality and direction of flow of ground water, the proximity and withdrawal rate of the ground-water users, the availability of alternative drinking water supplies, the existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water, public health, safety, and welfare effects, and practicable capability of the owner or operator. When physical obstacles preclude installation of ground-water monitoring wells at the relevant point of compliance at existing units, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the relevant point of compliance specified by the Director of an approved State that ensures detection of groundwater contamination in the uppermost aquifer.

(b) The Director of an approved State may approve a multi-unit ground-water monitoring system instead of separate ground-water monitoring systems for each unit when the facility has several units, provided the multi-unit ground-water monitoring system meets the requirement of § 257.22(a) and will be as protective of human health and the environment as individual monitoring systems for each unit, based on the following factors:

(1) Number, spacing, and orientation of the units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the units; and

(5) Type of waste accepted at the units.

(c) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground-water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground water.

(1) The owner or operator must notify the State Director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(d) The number, spacing, and depths of monitoring systems shall be:

(1) Determined based upon site-specific technical information that must include thorough characterization of:

(i) Aquifer thickness, ground-water flow rate, ground-water flow direction including seasonal and temporal fluctuations in ground-water flow; and

(ii) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) Certified by a qualified ground-water scientist or approved by the Director of an approved State. Within 14

days of this certification, the owner or operator must notify the State Director that the certification has been placed in the operating record.

### § 257.23 Ground-water sampling and analysis requirements.

(a) The ground-water monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of ground-water quality at the background and downgradient wells installed in compliance with § 257.22(a). The owner or operator must notify the State Director that the sampling and analysis program documentation has been placed in the operating record and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

(b) The ground-water monitoring program must include sampling and analytical methods that are appropriate for ground-water sampling and that accurately measure hazardous constituents and other monitoring parameters in ground-water samples. Ground-water samples shall not be field-filtered prior to laboratory analysis.

(c) The sampling procedures and frequency must be protective of human health and the environment.

(d) Ground-water elevations must be measured in each well immediately prior to purging, each time ground water is sampled. The owner or operator must determine the rate and direction of ground-water flow each time ground water is sampled. Ground-water elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in ground-water flow which could preclude accurate determination of ground-water flow rate and direction.

(e) The owner or operator must establish background ground-water quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular ground-water monitoring program that applies to the unit, as determined under § 257.24(a), or § 257.25(a). Background ground-water quality may be established at wells that are not located hydraulically upgradient from the unit if it meets the requirements of § 257.22(a)(1).

(f) The number of samples collected to establish ground-water quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (g) of this section. The sampling procedures shall be those specified under § 257.24(b) for detection monitoring, § 257.25 (b) and (d) for assessment monitoring, and § 257.26(b) for corrective action.

(g) The owner or operator must specify in the operating record one of the following statistical methods to be used in evaluating ground-water monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of paragraph (h) of this section. The

owner or operator must place a justification for this alternative in the operating record and notify the State Director of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph (h) of this section.

(h) Any statistical method chosen under paragraph (g) of this section shall comply with the following performance standards, as appropriate:

(1) The statistical method used to evaluate ground-water monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground-water protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate ground-water monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate ground-water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(i) The owner or operator must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular ground-water monitoring program that applies to the unit, as determined under §§ 257.24(a) or 257.25(a).

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the ground-water quality of each parameter or constituent at each monitoring well designated pursuant to § 257.22(a)(2) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (g) and (h) of this section.

(2) Within a reasonable period of time after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background at each monitoring well.

### § 257.24 Detection monitoring program.

(a) Detection monitoring is required at facilities identified in § 257.5(a) at all ground-water monitoring wells defined under §§ 257.22 (a)(1) and (a)(2). At a

minimum, a detection monitoring program must include the monitoring for the constituents listed in appendix I of 40 CFR Part 258.

(1) The Director of an approved State may delete any of the appendix I (Appendix I of 40 CFR Part 258) monitoring parameters for a unit if it can be shown that the removed constituents are not reasonably expected to be contained in or derived from the waste contained in the unit.

(2) The Director of an approved State may establish an alternative list of indicator parameters for a unit, in lieu of some or all of the constituents in appendix I to 40 CFR Part 258, if the alternative parameters provide a reliable indication of releases from the unit to the ground water. In determining alternative parameters, the Director shall consider the following factors:

(i) The types, quantities, and concentrations of constituents in waste managed at the unit;

(ii) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the unit;

(iii) The detectability of indicator parameters, waste constituents, and reaction products in the ground water; and

(iv) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(b) The monitoring frequency for all constituents listed in appendix I to 40 CFR Part 258, or in the alternative list approved in accordance with paragraph (a)(2) of this section, shall be at least semiannual during the active life of the unit plus 30 years. A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed for the appendix I (Appendix I of 40 CFR, Part 258) constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the first semiannual sampling event. At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events. The Director of an approved State may specify an appropriate alternative frequency for repeated sampling and analysis for appendix I (Appendix I of 40 CFR Part 258) constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the active life plus 30 years. The alternative frequency during the active life shall be no less than annual. The alternative frequency shall be based on consideration of the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground-water flow rates;

(4) Minimum distance between upgradient edge of the unit and downgradient monitoring well screen (minimum distance of travel); and

(5) Resource value of the aquifer.

(c) If the owner or operator determines, pursuant to §257.23(g), that there is a statistically significant increase over background for one or more of the constituents listed in appendix I to 40 CFR Part 258, or in the alternative list approved in accordance with paragraph (a)(2) of this section, at any monitoring well at the boundary specified under §257.22(a)(2), the owner or operator:

(1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the State Director that this notice was placed in the operating record; and

(2) Must establish an assessment monitoring program meeting the requirements of §257.25 within 90 days except as provided for in paragraph (c)(3) of this section.

(3) The owner/operator may demonstrate that a source other than the unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified groundwater scientist or approved by the Director of an approved State and be placed in the operating record. If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in this section. If, after 90 days, a

successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in § 257.25.

### § 257.25 Assessment monitoring program.

(a) Assessment monitoring is required whenever a statistically significant increase over background has been detected for one or more of the constituents listed in appendix I of 40 CFR Part 258 or in the alternative list approved in accordance with § 257.24(a)(2).

(b) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the ground water for all constituents identified in appendix II of 40 CFR Part 258. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as the result of the complete appendix II (Appendix II of 40 CFR Part 258) analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the new constituents. The Director of an approved State may specify an appropriate subset of wells to be sampled and analyzed for appendix II (Appendix II of 40 CFR Part 258) constituents during assessment monitoring. The Director of an approved State may delete any of the appendix II (Appendix II of 40 CFR Part 258) monitoring parameters for a unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(c) The Director of an approved State may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of appendix II (Appendix II of 40 CFR part 258) constituents, or the alternative list approved in accordance with paragraph (b) of this section, during the active life plus 30 years considering the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground-water flow rates;

(4) Minimum distance between upgradient edge of the unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to this section.

(d) After obtaining the results from the initial or subsequent sampling events required in paragraph (b) of this section, the owner or operator must:

(1) Within 14 days, place a notice in the operating record identifying the appendix II (appendix II of 40 CFR part 258) constituents that have been detected and notify the State Director that this notice has been placed in the operating record;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by § 257.22(a) to this section, conduct analyses for all constituents in appendix I (Appendix I of 40 CFR part 258) to this part or in the alternative list approved in accordance with § 257.24(a)(2), and for those constituents in appendix II to 40 CFR part 258 that are detected in response to paragraph (b) of this section, and record their concentrations in the facility operating record. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events. The Director of an approved State may specify an alternative monitoring frequency during the active life plus 30 years for the constituents referred to in this paragraph. The alternative frequency for appendix I (Appendix I of 40 CFR part 258) constituents, or the alternative list approved in accordance with § 257.24(a)(2), during the active life shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in paragraph (c) of this section;

(3) Establish background concentrations for any constituents detected pursuant to paragraphs (b) or (d)(2) of this section; and

(4) Establish ground-water protection standards for all constituents detected pursuant to paragraph (b) or (d) of this section. The ground-water protection

standards shall be established in accordance with paragraphs (h) or (i) of this section.

(e) If the concentrations of all appendix II (Appendix II of 40 CFR part 258) constituents are shown to be at or below background values, using the statistical procedures in §257.23(g), for two consecutive sampling events, the owner or operator must notify the State Director of this finding and may return to detection monitoring.

(f) If the concentrations of any appendix II (Appendix II of part 258) constituents are above background values, but all concentrations are below the ground-water protection standard established under paragraphs (h) or (i) of this section, using the statistical procedures in §257.23(g), the owner or operator must continue assessment monitoring in accordance with this section.

(g) If one or more appendix II (Appendix II of CFR part 258) constituents are detected at statistically significant levels above the ground-water protection standard established under paragraphs (h) or (i) of this section in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record identifying the appendix II (Appendix II of 40 CFR part 258) constituents that have exceeded the ground-water protection standard and notify the State Director and all appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(1)(i) Must characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(ii) Must install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with paragraph (d)(2) of this section;

(iii) Must notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance paragraph (g)(1) of this section; and

(iv) Must initiate an assessment of corrective measures as required by §257.26 within 90 days; or

(2) May demonstrate that a source other than the non-municipal non-hazardous waste disposal unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified ground-water scientist or approved by the Director of an approved State and placed in the operating record. If a successful demonstration is made the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this §257.25, and may return to detection monitoring if the appendix II (Appendix II of 40 CFR part 258) constituents are at or below background as specified in paragraph (e) of this section. Until a successful demonstration is made, the owner or operator must comply with §257.25(g) including initiating an assessment of corrective measures.

(h) The owner or operator must establish a ground-water protection standard for each appendix II (Appendix II of 40 CFR part 258) constituent detected in the ground-water. The ground-water protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR part 141, the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with §257.22(a)(1); or

(3) For constituents for which the background level is higher than the MCL identified under subparagraph (h)(1) of this section or health based levels identified under paragraph (i)(1) of this section, the background concentration.

(i) The Director of an approved State may establish an alternative ground-water protection standard for constituents for which MCLs have not been established. These ground-water protection standards shall be appropriate health based levels that satisfy the following criteria:

(1) The level is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028, September 24, 1986);

(2) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent;

(3) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) within the $1\times10^{-4}$ to $1\times10^{-6}$ range; and

(4) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this subpart, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

(j) In establishing ground-water protection standards under paragraph (i) of this section, the Director of an approved State may consider the following:

(1) Multiple contaminants in the ground water;

(2) Exposure threats to sensitive environmental receptors; and

(3) Other site-specific exposure or potential exposure to ground water.

### § 257.26 Assessment of corrective measures.

(a) Within 90 days of finding that any of the constituents listed in appendix II (Appendix II of 40 CFR Part 258) have been detected at a statistically significant level exceeding the ground-water protection standards defined under § 257.25 (h) or (i), the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed within a reasonable period of time.

(b) The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in § 257.25.

(c) The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under § 257.27, addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as State or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(d) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

### § 257.27 Selection of remedy.

(a) Based on the results of the corrective measures assessment conducted under § 257.26, the owner or operator must select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. The owner or operator must notify the State Director, within 14 days of selecting a remedy, that a report describing the selected remedy has been placed in the operating record and how it meets the standards in paragraph (b) of this section.

(b) Remedies must:

(1) Be protective of human health and the environment;

(2) Attain the ground-water protection standard as specified pursuant to §§ 257.25 (h) or (i);

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of appendix II (Appendix II of 40 CFR part 258) constituents into the environment that may pose a threat to human health or the environment; and

(4) Comply with standards for management of wastes as specified in § 257.28(d).

(c) In selecting a remedy that meets the standards of § 257.27(b), the owner or operator shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;

(iv) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal or containment;

(v) Time until full protection is achieved;

(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment;

(vii) Long-term reliability of the engineering and institutional controls; and

(viii) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(i) The extent to which containment practices will reduce further releases;

(ii) The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technology;

(ii) Expected operational reliability of the technologies;

(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.

(4) Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

(5) The degree to which community concerns are addressed by a potential remedy(s).

(d) The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d)(1) through (d)(8) of this section. The owner or operator must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with ground-water protection standards established under §§ 257.25 (g) or (h) and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users;

(iii) Ground-water quantity and quality;

(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituent;

(v) The hydrogeologic characteristic of the unit and surrounding land;

(vi) Ground-water removal and treatment costs; and

(vii) The cost and availability of alternative water supplies.

(7) Practicable capability of the owner or operator.

(8) Other relevant factors.

(e) The Director of an approved State may determine that remediation of a release of an appendix II (Appendix II of 40 CFR part 258) constituent from the unit is not necessary if the owner or operator demonstrates to the Director of the approved state that:

(1) The ground-water is additionally contaminated by substances that have originated from a source other than the unit and those substances are present in concentrations such that cleanup of the release from the unit would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent(s) is present in ground water that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the ground-water protection standards established under §257.25 (h) or (i); or

(3) Remediation of the release(s) is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

(f) A determination by the Director of an approved State pursuant to paragraph (e) of this section shall not affect the authority of the State to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the ground-water, to prevent exposure to the ground-water, or to remediate the ground-water to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

### §257.28 Implementation of the corrective action program.

(a) Based on the schedule established under §257.27(d) for initiation and completion of remedial activities the owner/operator must:

(1) Establish and implement a corrective action ground-water monitoring program that:

(i) At a minimum, meets the requirements of an assessment monitoring program under §257.25;

(ii) Indicates the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with ground-water protection standard pursuant to paragraph (e) of this section.

(2) Implement the corrective action remedy selected under §257.27; and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to §257.27. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the ground-water that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause hazardous constituents to migrate or be released;

(vi) Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and

(vii) Other situations that may pose threats to human health and the environment.

(b) An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of §257.27(b) are not being achieved through the remedy selected. In such cases, the owner or operator must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the

owner or operator makes the determination under § 257.28(c).

(c) If the owner or operator determines that compliance with requirements under § 257.27(b) cannot be practically achieved with any currently available methods, the owner or operator must:

(1) Obtain certification of a qualified ground-water scientist or approval by the Director of an approved State that compliance with requirements under § 257.27(b) cannot be practically achieved with any currently available methods;

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(3) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

(i) Technically practicable; and

(ii) Consistent with the overall objective of the remedy.

(4) Notify the State Director within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

(d) All solid wastes that are managed pursuant to a remedy required under § 257.27, or an interim measure required under § 257.28(a)(3), shall be managed in a manner:

(1) That is protective of human health and the environment; and

(2) That complies with applicable RCRA requirements.

(e) Remedies selected pursuant to § 257.27 shall be considered complete when:

(1) The owner or operator complies with the ground-water protection standards established under §§ 257.25 (h) or (i) at all points within the plume of contamination that lie beyond the ground-water monitoring well system established under § 257.22(a).

(2) Compliance with the ground-water protection standards established under §§ 257.25 (h) or (i) has been achieved by demonstrating that concentrations of appendix II (Appendix II of Part 258) constituents have not exceeded the ground-water protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.23 (g) and (h). The Director of an approved State may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of appendix II (Appendix II of 40 CFR part 258) constituents have not exceeded the ground-water protection standard(s) taking into consideration:

(i) Extent and concentration of the release(s);

(ii) Behavior characteristics of the hazardous constituents in the groundwater;

(iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

(iv) Characteristics of the groundwater.

(3) All actions required to complete the remedy have been satisfied.

(f) Upon completion of the remedy, the owner or operator must notify the State Director within 14 days that a certification that the remedy has been completed in compliance with the requirements of § 257.28(e) has been placed in the operating record. The certification must be signed by the owner or operator and by a qualified groundwater scientist or approved by the Director of an approved State.

RECORDKEEPING REQUIREMENTS

### § 257.30 Recordkeeping requirements.

(a) The owner/operator of a non-municipal non-hazardous waste disposal unit must record and retain near the facility in an operating record or in an alternative location approved by the Director of an approved State the following information as it becomes available:

(1) Any location restriction demonstration required under §§ 257.7 through 257.12; and

(2) Any demonstration, certification, finding, monitoring, testing, or analytical data required in §§ 257.21 through 257.28.

(b) The owner/operator must notify the State Director when the documents from paragraph (a) of this section have

been placed or added to the operating record, and all information contained in the operating record must be furnished upon request to the State Director or be made available at all reasonable times for inspection by the State Director.

(c) The Director of an approved State can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs (a) and (b) of this section, except for the notification requirements in §257.25(g)(1)(iii).

## APPENDIX I TO 40 CFR PART 257—MAXIMUM CONTAMINANT LEVELS (MCLS)

MAXIMUM CONTAMINANT LEVELS (MCLS) PROMULGATED UNDER THE SAFE DRINKING WATER ACT

| Chemical | CAS No. | MCL (mg/l) |
|---|---|---|
| Arsenic | 7440–38–2 | 0.05 |
| Barium | 7440–39–3 | 1.0 |
| Benzene | 71–343–2 | 0.005 |
| Cadmium | 7440–43–9 | 0.01 |
| Carbon tetrachloride | 56–23–5 | 0.005 |
| Chromium (hexavalent) | 7440–47–3 | 0.05 |
| 2,4-Dichlorophenoxy acetic acid | 94–75–7 | 0.1 |
| 1,4-Dichlorobenzene | 106–46–7 | 0.075 |
| 1,2-Dichloroethane | 107–06–2 | 0.005 |
| 1,1-Dichloroethylene | 75–35–4 | 0.007 |
| Endrin | 75–20–8 | 0.0002 |
| Fluoride | 7 | 4.0 |
| Lindane | 58–89–9 | 0.004 |
| Lead | 7439–92–1 | 0.05 |
| Mercury | 7439–97–6 | 0.002 |
| Methoxychlor | 72–43–5 | 0.1 |
| Nitrate | ..... | 10.0 |
| Selenium | 7782–49–2 | 0.01 |
| Silver | 7440–22–4 | 0.05 |
| Toxaphene | 8001–35–2 | 0.005 |
| 1,1,1-Trichloroethane | 71–55–6 | 0.2 |
| Trichloroethylene | 79–01–6 | 0.005 |
| 2,4,5-Trichlorophenoxy acetic acid | 93–76–5 | 0.01 |
| Vinyl chloride | 75–01–4 | 0.002 |

[56 FR 51016, Oct. 9, 1991]

## APPENDIX II TO PART 257

### *A. Processes to Significantly Reduce Pathogens*

*Aerobic digestion:* The process is conducted by agitating sludge with air or oxygen to maintain aerobic conditions at residence times ranging from 60 days at 15° C to 40 days at 20° C, with a volatile solids reduction of at least 38 percent.

*Air Drying:* Liquid sludge is allowed to drain and/or dry on under-drained sand beds, or paved or unpaved basins in which the sludge is at a depth of nine inches. A minimum of three months is needed, two months of which temperatures average on a daily basis above 0° C.

*Anaerobic digestion:* The process is conducted in the absence of air at residence times ranging from 60 days at 20° C to 15 days at 35° to 55° C, with a volatile solids reduction of at least 38 percent.

*Composting:* Using the within-vessel, static aerated pile or windrow composting methods, the solid waste is maintained at minimum operating conditions of 40° C for 5 days. For four hours during this period the temperature exceeds 55° C.

*Lime Stabilization:* Sufficient lime is added to produce a pH of 12 after 2 hours of contact.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens and vector attraction of the waste (volatile solids) are reduced to an extent equivalent to the reduction achieved by any of the above methods.

### *B. Processes to Further Reduce Pathogens*

*Composting:* Using the within-vessel composting method, the solid waste is maintained at operating conditions of 55° C or greater for three days. Using the static aerated pile composting method, the solid waste is maintained at operating conditions of 55° C or greater for three days. Using the windrow composting method, the solid waste attains a temperature of 55° C or greater for at least 15 days during the composting period. Also, during the high temperature period, there will be a minimum of five turnings of the windrow.

*Heat drying:* Dewatered sludge cake is dried by direct or indirect contact with hot gases, and moisture content is reduced to 10 percent or lower. Sludge particles reach temperatures well in excess of 80° C, or the wet bulb temperature of the gas stream in contact with the sludge at the point where it leaves the dryer is in excess of 80° C.

*Heat treatment:* Liquid sludge is heated to temperatures of 180° C for 30 minutes.

*Thermophilic Aerobic Digestion:* Liquid sludge is agitated with air or oxygen to maintain aerobic conditions at residence times of 10 days at 55–60° C, with a volatile solids reduction of at least 38 percent.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens and vector attraction of the waste (volatile solids) are reduced to an extent equivalent to the reduction achieved by any of the above methods.

Any of the processes listed below, if added to the processes described in Section A above, further reduce pathogens. Because the processes listed below, on their own, do not reduce the attraction of disease vectors, they are only add-on in nature.

*Beta ray irradiation:* Sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20° C).

*Gamma ray irradiation:* Sludge is irradiated with gamma rays from certain isotopes, such

as $^{60}$Cobalt and $^{137}$Cesium, at dosages of at least 1.0 megarad at room temperature (ca. 20° C).

*Pasteurization:* Sludge is maintained for at least 30 minutes at a minimum temperature of 70° C.

*Other methods:* Other methods or operating conditions may be acceptable if pathogens are reduced to an extent equivalent to the reduction achieved by any of the above add-on methods.

# PART 258—CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

## Subpart A—General



## Subpart B—Location Restrictions



## Subpart C—Operating Criteria



## Subpart D—Design Criteria



## Subpart E—Ground-Water Monitoring and Corrective Action



## Subpart F—Closure and Post-closure Care



## Subpart G—Financial Assurance Criteria



AUTHORITY: 33 U.S.C. 1345 (d) and (e); 42 U.S.C. 6907(a)(3), 6912(a), 6944(a) and 6949a(c).

SOURCE: 56 FR 51016, Oct. 9, 1991, unless otherwise noted.

## Subpart A—General

### § 258.1 Purpose, scope, and applicability.

(a) The purpose of this part is to establish minimum national criteria under the Resource Conservation and Recovery Act (RCRA or the Act), as amended, for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act, as amended, for municipal solid waste landfills that are used to dispose of sewage sludge. These minimum national criteria ensure the protection of human health and the environment.

(b) These Criteria apply to owners and operators of new MSWLF units, existing MSWLF units, and lateral expansions, except as otherwise specifically provided in this part; all other solid waste disposal facilities and practices that are not regulated under subtitle C of RCRA are subject to the criteria contained in part 257 of this chapter.

(c) These Criteria do not apply to municipal solid waste landfill units that do not receive waste after October 9, 1991.

(d)(1) MSWLF units that meet the conditions of § 258.1(e)(2) and receive

waste after October 9, 1991 but stop receiving waste before April 9, 1994, are exempt from all the requirements of this part 258, except the final cover requirement specified in §258.60(a). The final cover must be installed by October 9, 1994. Owners or operators of MSWLF units described in this paragraph that fail to complete cover installation by October 9, 1994 will be subject to all the requirements of this part 258, unless otherwise specified.

(2) MSWLF units that meet the conditions of §258.1(e)(3) and receive waste after October 9, 1991 but stop receiving waste before the date designated by the state pursuant to §258.1(e)(3), are exempt from all the requirements of this part 258, except the final cover requirement specified in §258.60(a). The final cover must be installed within one year after the date designated by the state pursuant to §258.1(e)(3). Owners or operators of MSWLF units described in this paragraph that fail to complete cover installation within one year after the date designated by the state pursuant to §258.1(e)(3) will be subject to all the requirements of this part 258, unless otherwise specified.

(3) MSWLF units that meet the conditions of paragraph (f)(1) of this section and receive waste after October 9, 1991 but stop receiving waste before October 9, 1997, are exempt from all the requirements of this part 258, except the final cover requirement specified in §258.60(a). The final cover must be installed by October 9, 1998. Owners or operators of MSWLF units described in this paragraph that fail to complete cover installation by October 9, 1998 will be subject to all the requirements of this part 258, unless otherwise specified.

(4) MSWLF units that do not meet the conditions of §258.1 (e)(2), (e)(3), or (f) and receive waste after October 9, 1991 but stop receiving waste before October 9, 1993, are exempt from all the requirements this part 258, except the final cover requirement specified in §258.60(a). The final cover must be installed by October 9, 1994. Owners or operators of MSWLF units described in this paragraph that fail to complete cover installation by October 9, 1994 will be subject to all the requirements of this part 258, unless otherwise specified.

(e)(1) The compliance date for all requirements of this part 258, unless otherwise specified, is October 9, 1993 for all MSWLF units that receive waste on or after October 9, 1993, except those units that qualify for an extension under (e)(2), (3), or (4) of this section.

(2) The compliance date for all requirements of this part 258, unless otherwise specified, is April 9, 1994 for an existing MSWLF unit or a lateral expansion of an existing MSWLF unit that meets the following conditions:

(i) The MSWLF unit disposed of 100 tons per day or less of solid waste during a representative period prior to October 9, 1993;

(ii) The unit does not dispose of more than an average of 100 TPD of solid waste each month between October 9, 1993 and April 9, 1994;

(iii) The MSWLF unit is located in a state that has submitted an application for permit program approval to EPA by October 9, 1993, is located in the state of Iowa, or is located on Indian Lands or Indian Country; and

(iv) The MSWLF unit is not on the National Priorities List (NPL) as found in appendix B to 40 CFR part 300.

(3) The compliance date for all requirements of this part 258, unless otherwise specified, for an existing MSWLF unit or lateral expansion of an existing MSWLF unit receiving flood-related waste from federally-designated areas within the major disasters declared for the states of Iowa, Illinois, Minnesota, Wisconsin, Missouri, Nebraska, Kansas, North Dakota, and South Dakota by the President during the summer of 1993 pursuant to 42 U.S.C. 5121 *et seq.*, shall be designated by the state in which the MSWLF unit is located in accordance with the following:

(i) The MSWLF unit may continue to accept waste up to April 9, 1994 without being subject to part 258, if the state in which the MSWLF unit is located determines that the MSWLF unit is needed to receive flood-related waste from a federally-designated disaster area as specified in (e)(3) of this section.

(ii) The MSWLF unit that receives an extension under paragraph (e)(3)(i) of this section may continue to accept

waste up to an additional six months beyond April 9, 1994 without being subject to part 258, if the state in which the MSWLF unit is located determines that the MSWLF unit is needed to receive flood-related waste from a federally-designated disaster area specified in (e)(3) of this section.

(iii) In no case shall a MSWLF unit receiving an extension under paragraph (e)(3) (i) or (ii) of this section accept waste beyond October 9, 1994 without being subject to part 258.

(4) For a MSWLF unit that meets the conditions for the exemption in paragraph (f)(1) of this section, the compliance date for all applicable requirements of part 258, unless otherwise specified, is October 9, 1997.

(f)(1) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than twenty (20) tons of municipal solid waste daily, based on an annual average, are exempt from subpart D of this part, so long as there is no evidence of ground-water contamination from the MSWLF unit, and the MSWLF unit serves:

(i) A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility, or

(ii) A community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 inches of precipitation.

(2) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that meet the criteria in paragraph (f)(1)(i) or (f)(1)(ii) of this section must place in the operating record information demonstrating this.

(3) If the owner or operator of a new MSWLF unit, existing MSWLF unit, or lateral expansion has knowledge of ground-water contamination resulting from the unit that has asserted the exemption in paragraph (f)(1)(i) or (f)(1)(ii) of this section, the owner or operator must notify the state Director of such contamination and, thereafter, comply with subpart D of this part.

(g) Municipal solid waste landfill units failing to satisfy these criteria are considered open dumps for purposes of State solid waste management planning under RCRA.

(h) Municipal solid waste landfill units failing to satisfy these criteria constitute open dumps, which are prohibited under section 4005 of RCRA.

(i) Municipal solid waste landfill units containing sewage sludge and failing to satisfy these Criteria violate sections 309 and 405(e) of the Clean Water Act.

(j) Subpart G of this part is effective April 9, 1995, except for MSWLF units meeting the requirements of paragraph (f)(1) of this section, in which case the effective date of subpart G is October 9, 1995.

[56 FR 51016, Oct. 9, 1991, as amended at 58 FR 51546, Oct. 1, 1993; 60 FR 52342, Oct. 6, 1995]

### § 258.2 Definitions.

Unless otherwise noted, all terms contained in this part are defined by their plain meaning. This section contains definitions for terms that appear throughout this part; additional definitions appear in the specific sections to which they apply.

*Active life* means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities in accordance with § 258.60 of this part.

*Active portion* means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with § 258.60 of this part.

*Aquifer* means a geological formation, group of formations, or porton of a formation capable of yielding significant quantities of ground water to wells or springs.

*Commercial solid waste* means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

*Director of an approved State* means the chief administrative officer of a State agency responsible for implementing the State municipal solid waste permit program or other system of prior approval that is deemed to be adequate by EPA under regulations published pursuant to sections 2002 and 4005 of RCRA.

*Existing MSWLF unit* means any municipal solid waste landfill unit that is receiving solid waste as of the appropriate dates specified in §258.1(e). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management.

*Facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

*Ground water* means water below the land surface in a zone of saturation.

*Household waste* means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

*Indian lands* or *Indian country* means:

(1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;

(2) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the State; and

(3) All Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

*Indian Tribe* or *Tribe* means any Indian tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers on Indian lands.

*Industrial solid waste* means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

*Lateral expansion* means a horizontal expansion of the waste boundaries of an existing MSWLF unit.

*Leachate* means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

*Municipal solid waste landfill unit* means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under §257.2. A MSWLF unit also may receive other types of RCRA subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

*New MSWLF unit* means any municipal solid waste landfill unit that has not received waste prior to October 9, 1993, or prior to October 9, 1997 if the MSWLF unit meets the conditions of §258.1(f)(1).

*Open burning* means the combustion of solid waste without:

(1) Control of combustion air to maintain adequate temperature for efficient combustion,

(2) Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and

(3) Control of the emission of the combustion products.

*Operator* means the person(s) responsible for the overall operation of a facility or part of a facility.

*Owner* means the person(s) who owns a facility or part of a facility.

*Run-off* means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

*Run-on* means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

*Saturated zone* means that part of the earth's crust in which all voids are filled with water.

*Sludge* means any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

*Solid waste* means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

*State* means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

*State Director* means the chief administrative officer of the State agency responsible for implementing the State municipal solid waste permit program or other system of prior approval.

*Uppermost aquifer* means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

*Waste management unit boundary* means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

[56 FR 51016, Oct. 9, 1991; 57 FR 28627, June 26, 1992, as amended at 58 FR 51547, Oct. 1, 1993; 60 FR 52342, Oct. 6, 1995]

### § 258.3 Consideration of other Federal laws.

The owner or operator of a municipal solid waste landfill unit must comply with any other applicable Federal rules, laws, regulations, or other requirements.

### §§ 258.4—258.9 [Reserved]

## Subpart B—Location Restrictions

### § 258.10 Airport safety.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used by only piston-type aircraft must demonstrate that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft.

(b) Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the Federal Aviation Administration (FAA).

(c) The owner or operator must place the demonstration in paragraph (a) of this section in the operating record and notify the State Director that it has been placed in the operating record.

(d) For purposes of this section:

(1) *Airport* means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

(2) *Bird hazard* means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

### § 258.11 Floodplains.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in 100-year floodplains must demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner

or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) For purposes of this section:

(1) *Floodplain* means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, that are inundated by the 100-year flood.

(2) *100-year flood* means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

(3) *Washout* means the carrying away of solid waste by waters of the base flood.

### § 258.12 Wetlands.

(a) New MSWLF units and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the Director of an approved State:

(1) Where applicable under section 404 of the Clean Water Act or applicable State wetlands laws, the presumption that practicable alternative to the proposed landfill is available which does not involve wetlands is clearly rebutted;

(2) The construction and operation of the MSWLF unit will not:

(i) Cause or contribute to violations of any applicable State water quality standard,

(ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act,

(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973, and

(iv) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(3) The MSWLF unit will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the MSWLF unit and its ability to protect ecological resources by addressing the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit;

(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit;

(iii) The volume and chemical nature of the waste managed in the MSWLF unit;

(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(v) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(4) To the extent required under section 404 of the Clean Water Act or applicable State wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by paragraph (a)(1) of this section, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasonable determination with respect to these demonstrations.

(b) For purposes of this section, *wetlands* means those areas that are defined in 40 CFR 232.2(r).

### § 258.13 Fault areas.

(a) New MSWLF units and lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the Director of an approved State that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.

(b) For the purposes of this section:

(1) *Fault* means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

(2) *Displacement* means the relative movement of any two sides of a fault measured in any direction.

(3) *Holocene* means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

### § 258.14 Seismic impact zones.

(a) New MSWLF units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Director of an approved State/Tribe that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) For the purposes of this section:

(1) *Seismic impact zone* means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

(2) *Maximum horizontal acceleration in lithified earth material* means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(3) *Lithified earth material* means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

[56 FR 51016, Oct. 9, 1991; 57 FR 28627, June 26, 1992]

### § 258.15 Unstable areas.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or events (both surface and subsurface).

(b) For purposes of this section:

(1) *Unstable area* means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes.

(2) *Structural components* means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment.

(3) *Poor foundation conditions* means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an MSWLF unit.

(4) *Areas susceptible to mass movement* means those areas of influence (i.e., areas characterized as having an active

or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

(5) *Karst terranes* means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

### § 258.16 Closure of existing municipal solid waste landfill units.

(a) Existing MSWLF units that cannot make the demonstration specified in §258.10(a), pertaining to airports, §258.11(a), pertaining to floodplains, or §258.15(a), pertaining to unstable areas, must close by October 9, 1996, in accordance with §258.60 of this part and conduct post-closure activities in accordance with §258.61 of this part.

(b) The deadline for closure required by paragraph (a) of this section may be extended up to two years if the owner or operator demonstrates to the Director of an approved State that:

(1) There is no available alternative disposal capacity;

(2) There is no immediate threat to human health and the environment.

NOTE TO SUBPART B: Owners or operators of MSWLFs should be aware that a State in which their landfill is located or is to be located, may have adopted a state wellhead protection program in accordance with section 1428 of the Safe Drinking Water Act. Such state wellhead protection programs may impose additional requirements on owners or operators of MSWLFs than those set forth in this part.

### §§ 258.17—258.19 [Reserved]

## Subpart C—Operating Criteria

### § 258.20 Procedures for excluding the receipt of hazardous waste.

(a) Owners or operators of all MSWLF units must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes as defined in part 261 of this chapter and polychlorinated biphenyls (PCB) wastes as defined in part 761 of this chapter. This program must include, at a minimum:

(1) Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes;

(2) Records of any inspections;

(3) Training of facility personnel to recognize regulated hazardous waste and PCB wastes; and

(4) Notification of State Director of authorized States under Subtitle C of RCRA or the EPA Regional Administrator if in an unauthorized State if a regulated hazardous waste or PCB waste is discovered at the facility.

(b) For purposes of this section, *regulated hazardous waste* means a solid waste that is a hazardous waste, as defined in 40 CFR 261.3, that is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) or was not generated by a conditionally exempt small quantity generator as defined in §261.5 of this chapter.

### § 258.21 Cover material requirements.

(a) Except as provided in paragraph (b) of this section, the owners or operators of all MSWLF units must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

(b) Alternative materials of an alternative thickness (other than at least six inches of earthen material) may be approved by the Director of an approved State if the owner or operator

demonstrates that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

(c) The Director of an approved State may grant a temporary waiver from the requirement of paragraph (a) and (b) of this section if the owner or operator demonstrates that there are extreme seasonal climatic conditions that make meeting such requirements impractical.

### § 258.22 Disease vector control.

(a) Owners or operators of all MSWLF units must prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and the environment.

(b) For purposes of this section, *disease vectors* means any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans.

### § 258.23 Explosive gases control.

(a) Owners or operators of all MSWLF units must ensure that:

(1) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and

(2) The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary.

(b) Owners or operators of all MSWLF units must implement a routine methane monitoring program to ensure that the standards of paragraph (a) of this section are met.

(1) The type and frequency of monitoring must be determined based on the following factors:

(i) Soil conditions;

(ii) The hydrogeologic conditions surrounding the facility;

(iii) The hydraulic conditions surrounding the facility; and

(iv) The location of facility structures and property boundaries.

(2) The minimum frequency of monitoring shall be quarterly.

(c) If methane gas levels exceeding the limits specified in paragraph (a) of this section are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the State Director;

(2) Within seven days of detection, place in the operating record the methane gas levels detected and a description of the steps taken to protect human health; and

(3) Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the State Director that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

(4) The Director of an approved State may establish alternative schedules for demonstrating compliance with paragraphs (c) (2) and (3) of this section.

(d) For purposes of this section, *lower explosive limit* means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure.

### § 258.24 Air criteria.

(a) Owners or operators of all MSWLFs must ensure that the units not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

(b) Open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations, is prohibited at all MSWLF units.

### § 258.25 Access requirements.

Owners or operators of all MSWLF units must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

### § 258.26 Run-on/run-off control systems.

(a) Owners or operators of all MSWLF units must design, construct, and maintain:

(1) A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

(2) A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(b) Run-off from the active portion of the landfill unit must be handled in accordance with § 258.27(a) of this part.

[56 FR 51016, Oct. 9, 1991; 57 FR 28627, June 26, 1992]

### § 258.27 Surface water requirements.

MSWLF units shall not:

(a) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402.

(b) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an areawide or State-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

### § 258.28 Liquids restrictions.

(a) Bulk or noncontainerized liquid waste may not be placed in MSWLF units unless:

(1) The waste is household waste other than septic waste; or

(2) The waste is leachate or gas condensate derived from the MSWLF unit and the MSWLF unit, whether it is a new or existing MSWLF, or lateral expansion, is designed with a composite liner and leachate collection system as described in § 258.40(a)(2) of this part. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) Containers holding liquid waste may not be placed in a MSWLF unit unless:

(1) The container is a small container similar in size to that normally found in household waste;

(2) The container is designed to hold liquids for use other than storage; or

(3) The waste is household waste.

(c) For purposes of this section:

(1) *Liquid waste* means any waste material that is determined to contain ''free liquids'' as defined by Method 9095 (Paint Filter Liquids Test), as described in ''Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods'' (EPA Pub. No. SW–846).

(2) *Gas condensate* means the liquid generated as a result of gas recovery process(es) at the MSWLF unit.

### § 258.29 Recordkeeping requirements.

(a) The owner or operator of a MSWLF unit must record and retain near the facility in an operating record or in an alternative location approved by the Director of an approved State the following information as it becomes available:

(1) Any location restriction demonstration required under subpart B of this part;

(2) Inspection records, training procedures, and notification procedures required in § 258.20 of this part;

(3) Gas monitoring results from monitoring and any remediation plans required by § 258.23 of this part;

(4) Any MSWLF unit design documentation for placement of leachate or gas condensate in a MSWLF unit as required under § 258.28(a)(2) of this part;

(5) Any demonstration, certification, finding, monitoring, testing, or analytical data required by subpart E of this part;

(6) Closure and post-closure care plans and any monitoring, testing, or analytical data as required by §§ 258.60 and 258.61 of this part; and

(7) Any cost estimates and financial assurance documentation required by subpart G of this part.

(8) Any information demonstrating compliance with small community exemption as required by § 258.1(f)(2).

(b) The owner/operator must notify the State Director when the documents from paragraph (a) of this section have

been placed or added to the operating record, and all information contained in the operating record must be furnished upon request to the State Director or be made available at all reasonable times for inspection by the State Director.

(c) The Director of an approved State can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs (a) and (b) of this section, except for the notification requirements in §258.10(b) and §258.55(g)(1)(iii).

**§§ 258.30—258.39 [Reserved]**

## Subpart D—Design Criteria

### §258.40 Design criteria.

(a) New MSWLF units and lateral expansions shall be constructed:

(1) In accordance with a design approved by the Director of an approved State or as specified in §258.40(e) for unapproved States. The design must ensure that the concentration values listed in Table 1 of this section will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified by the Director of an approved State under paragraph (d) of this section, or

(2) With a composite liner, as defined in paragraph (b) of this section and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

(b) For purposes of this section, *composite liner* means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1\times10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(c) When approving a design that complies with paragraph (a)(1) of this section, the Director of an approved State shall consider at least the following factors:

(1) The hydrogeologic characteristics of the facility and surrounding land;

(2) The climatic factors of the area; and

(3) The volume and physical and chemical characteristics of the leachate.

(d) The relevant point of compliance specified by the Director of an approved State shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the MSWLF unit. In determining the relevant point of compliance State Director shall consider at least the following factors:

(1) The hydrogeologic characteristics of the facility and surrounding land;

(2) The volume and physical and chemical characteristics of the leachate;

(3) The quantity, quality, and direction, of flow of ground water;

(4) The proximity and withdrawal rate of the ground-water users;

(5) The availability of alternative drinking water supplies;

(6) The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water;

(7) Public health, safety, and welfare effects; and

(8) Practicable capability of the owner or operator.

(e) If EPA does not promulgate a rule establishing the procedures and requirements for State compliance with RCRA section 4005(c)(1)(B) by October 9, 1993, owners and operators in unapproved States may utilize a design meeting the performance standard in §258.40(a)(1) if the following conditions are met:

(1) The State determines the design meets the performance standard in §258.40(a)(1);

(2) The State petitions EPA to review its determination; and

(3) EPA approves the State determination or does not disapprove the determination within 30 days.

NOTE TO SUBPART D: 40 CFR part 239 is reserved to establish the procedures and requirements for State compliance with RCRA section 4005(c)(1)(B).

TABLE 1

| Chemical | MCL (mg/l) |
|---|---|
| Arsenic | 0.05 |
| Barium | 1.0 |
| Benzene | 0.005 |
| Cadmium | 0.01 |
| Carbon tetrachloride | 0.005 |
| Chromium (hexavalent) | 0.05 |
| 2,4-Dichlorophenoxy acetic acid | 0.1 |
| 1,4-Dichlorobenzene | 0.075 |
| 1,2-Dichloroethane | 0.005 |
| 1,1-Dichloroethylene | 0.007 |
| Endrin | 0.0002 |
| Fluoride | 4 |
| Lindane | 0.004 |
| Lead | 0.05 |
| Mercury | 0.002 |
| Methoxychlor | 0.1 |
| Nitrate | 10 |
| Selenium | 0.01 |
| Silver | 0.05 |
| Toxaphene | 0.005 |
| 1,1,1-Trichloromethane | 0.2 |
| Trichloroethylene | 0.005 |
| 2,4,5-Trichlorophenoxy acetic acid | 0.01 |
| Vinyl Chloride | 0.002 |

**§§ 258.41–258.49 [Reserved]**

## Subpart E—Ground-Water Monitoring and Corrective Action

### § 258.50 Applicability.

(a) The requirements in this part apply to MSWLF units, except as provided in paragraph (b) of this section.

(b) Ground-water monitoring requirements under § 258.51 through § 258.55 of this part may be suspended by the Director of an approved State for a MSWLF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer (as defined in § 258.2) during the active life of the unit and the post-closure care period. This demonstration must be certified by a qualified ground-water scientist and approved by the Director of an approved State, and must be based upon:

(1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

(c) Owners and operators of MSWLF units, except those meeting the conditions of § 258.1(f), must comply with the ground-water monitoring requirements of this part according to the following schedule unless an alternative schedule is specified under paragraph (d) of this section:

(1) Existing MSWLF units and lateral expansions less than one mile from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1994;

(2) Existing MSWLF units and lateral expansions greater than one mile but less than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1995;

(3) Existing MSWLF units and lateral expansions greater than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1996.

(4) New MSWLF units must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 before waste can be placed in the unit.

(d) The Director of an approved State may specify an alternative schedule for the owners or operators of existing MSWLF units and lateral expansions to comply with the ground-water monitoring requirements specified in §§ 258.51–258.55. This schedule must ensure that 50 percent of all existing MSWLF units are in compliance by October 9, 1994 and all existing MSWLF units are in compliance by October 9, 1996. In setting the compliance schedule, the Director of an approved State must consider potential risks posed by the unit to human health and the environment. The following factors should be considered in determining potential risk:

(1) Proximity of human and environmental receptors;

(2) Design of the MSWLF unit;

(3) Age of the MSWLF unit;

(4) The size of the MSWLF unit; and

(5) Types and quantities of wastes disposed including sewage sludge; and

(6) Resource value of the underlying aquifer, including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users; and

(iii) Ground-water quality and quantity.

(e) Owners and operators of all MSWLF units that meet the conditions of §258.1(f)(1) must comply with all applicable ground-water monitoring requirements of this part by October 9, 1997.

(f) Once established at a MSWLF unit, ground-water monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit as specified in §258.61.

(g) For the purposes of this subpart, a *qualified ground-water scientist* is a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by State registration, professional Certifications, or completion of accredited university programs that enable that individual to make sound professional judgements regarding ground-water monitoring, contaminant fate and transport, and corrective-action.

(h) The Director of an approved State may establish alternative schedules for demonstrating compliance with §258.51(d)(2), pertaining to notification of placement of certification in operating record; §258.54(c)(1), pertaining to notification that statistically significant increase (SSI) notice is in operating record; §258.54(c) (2) and (3), pertaining to an assessment monitoring program; §258.55(b), pertaining to sampling and analyzing appendix II constituents; §258.55(d)(1), pertaining to placement of notice (appendix II constituents detected) in record and notification of notice in record; §258.55(d)(2), pertaining to sampling for appendix I and II to this part; §258.55(g), pertaining to notification (and placement of notice in record) of SSI above groundwater protection standard; §§258.55(g)(1)(iv) and 258.56(a), pertaining to assessment of corrective measures; §258.57(a), pertaining to selection of remedy and notification of placement in record; §258.58(c)(4), pertaining to notification of placement in record (alternative corrective action measures); and §258.58(f), pertaining to notification of placement in record (certification of remedy completed).

[56 FR 51016, Oct. 9, 1991; 57 FR 28628, June 26, 1992, as amended at 58 FR 51547, Oct. 1, 1993; 60 FR 52342, Oct. 6, 1995]

### §258.51 Ground-water monitoring systems.

(a) A ground-water monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer (as defined in §258.2) that:

(1) Represent the quality of background ground water that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(i) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background ground-water quality that is as representative or more representative than that provided by the upgradient wells; and

(2) Represent the quality of ground water passing the relevant point of compliance specified by Director of an approved State under §258.40(d) or at the waste management unit boundary in unapproved States. The down-gradient monitoring system must be installed at the relevant point of compliance specified by the Director of an approved State under §258.40(d) or at the waste management unit boundary in unapproved States that ensures detection of ground-water contamination in the uppermost aquifer. When physical obstacles preclude installation of ground-water monitoring wells at the relevant point of compliance at existing units, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the relevant point of compliance specified by

the Director of an approved State under § 258.40 that ensure detection of groundwater contamination in the uppermost aquifer.

(b) The Director of an approved State may approve a multiunit ground-water monitoring system instead of separate ground-water monitoring systems for each MSWLF unit when the facility has several units, provided the multiunit ground-water monitoring system meets the requirement of § 258.51(a) and will be as protective of human health and the environment as individual monitoring systems for each MSWLF unit, based on the following factors:

(1) Number, spacing, and orientation of the MSWLF units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the MSWLF units, and

(5) Type of waste accepted at the MSWLF units.

(c) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground-water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground water.

(1) The owner or operator must notify the State Director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(d) The number, spacing, and depths of monitoring systems shall be:

(1) Determined based upon site-specific technical information that must include thorough characterization of:

(i) Aquifer thickness, ground-water flow rate, ground-water flow direction including seasonal and temporal fluctuations in ground-water flow; and

(ii) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: Thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) Certified by a qualified ground-water scientist or approved by the Director of an approved State. Within 14 days of this certification, the owner or operator must notify the State Director that the certification has been placed in the operating record.

### § 258.52 [Reserved]

### § 258.53 Ground-water sampling and analysis requirements.

(a) The ground-water monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of ground-water quality at the background and downgradient wells installed in compliance with § 258.51(a) of this part. The owner or operator must notify the State Director that the sampling and analysis program documentation has been placed in the operating record and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

(b) The ground-water monitoring program must include sampling and analytical methods that are appropriate for ground-water sampling and that accurately measure hazardous constituents and other monitoring parameters in ground-water samples. Ground-water samples shall not be field-filtered prior to laboratory analysis.

(c) The sampling procedures and frequency must be protective of human health and the environment.

(d) Ground-water elevations must be measured in each well immediately prior to purging, each time ground

water is sampled. The owner or operator must determine the rate and direction of ground-water flow each time ground water is sampled. Ground-water elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in ground-water flow which could preclude accurate determination of ground-water flow rate and direction.

(e) The owner or operator must establish background ground-water quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular ground-water monitoring program that applies to the MSWLF unit, as determined under §258.54(a) or §258.55(a) of this part. Background ground-water quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if it meets the requirements of §258.51(a)(1).

(f) The number of samples collected to establish ground-water quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (g) of this section. The sampling procedures shall be those specified under §258.54(b) for detection monitoring, §258.55 (b) and (d) for assessment monitoring, and §258.56(b) of corrective action.

(g) The owner or operator must specify in the operating record one of the following statistical methods to be used in evaluating ground-water monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of §258.53(h). The owner or operator must place a justification for this alternative in the operating record and notify the State Director of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of §258.53(h).

(h) Any statistical method chosen under §258.53(g) shall comply with the following performance standards, as appropriate:

(1) The statistical method used to evaluate ground-water monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground-water protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate ground-water monitoring

data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate ground-water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(i) The owner or operator must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular ground-water monitoring program that applies to the MSWLF unit, as determined under §§ 258.54(a) or 258.55(a) of this part.

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the ground-water quality of each parameter or constituent at each monitoring well designated pursuant to § 258.51(a)(2) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (g) and (h) of this section.

(2) Within a reasonable period of time after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background at each monitoring well.

### § 258.54 Detection monitoring program.

(a) Detection monitoring is required at MSWLF units at all ground-water monitoring wells defined under §§ 258.51 (a)(1) and (a)(2) of this part. At a minimum, a detection monitoring program must include the monitoring for the constituents listed in appendix I to this part.

(1) The Director of an approved State may delete any of the appendix I monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(2) The Director of an approved State may establish an alternative list of inorganic indicator parameters for a MSWLF unit, in lieu of some or all of the heavy metals (constituents 1–15 in appendix I to this part), if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the ground water. In determining alternative parameters, the Director shall consider the following factors:

(i) The types, quantities, and concentrations of constituents in wastes managed at the MSWLF unit;

(ii) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;

(iii) The detectability of indicator parameters, waste constituents, and reaction products in the ground water; and

(iv) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(b) The monitoring frequency for all constituents listed in appendix I to thispart, or in the alternative list approved in accordance with paragraph (a)(2) of 394this section, shall be at least

semiannual during the active life of the facility (including closure) and the post-closure period. A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed for the appendix I constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the first semiannual sampling event. At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events. The Director of an approved State may specify an appropriate alternative frequency for repeated sampling and analysis for appendix I constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the active life (including closure) and the post-closure care period. The alternative frequency during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground-water flow rates;

(4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel); and

(5) Resource value of the aquifer.

(c) If the owner or operator determines, pursuant to §258.53(g) of this part, that there is a statistically significant increase over background for one or more of the constituents listed in appendix I to this part or in the alternative list approved in accordance with paragraph (a)(2) of this section, at any monitoring well at the boundary specified under §258.51(a)(2), the owner or operator:

(1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the State director that this notice was placed in the operating record; and

(2) Must establish an assessment monitoring program meeting the requirements of §258.55 of this part within 90 days except as provided for in paragraph (c)(3) of this section.

(3) The owner/operator may demonstrate that a source other than a MSWLF unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified ground-water scientist or approved by the Director of an approved State and be placed in the operating record. If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in this section. If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in §258.55.

### §258.55 Assessment monitoring program.

(a) Assessment monitoring is required whenever a statistically significant increase over background has been detected for one or more of the constituents listed in the appendix I to this part or in the alternative list approved in accordance with §258.54(a)(2).

(b) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the ground water for all constituents identified in appendix II to this part. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the constituents. The Director of an approved State may specify an appropriate subset of wells to be sampled and analyzed for appendix II constituents during assessment monitoring. The Director of an approved State may delete any of the appendix II monitoring parameters for a MSWLF unit if it

can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(c) The Director of an approved State may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of appendix II constituents required by § 258.55(b) of this part, during the active life (including closure) and post-closure care of the unit considering the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Ground-water flow rates;

(4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to this section.

(d) After obtaining the results from the initial or subsequent sampling events required in paragraph (b) of this section, the owner or operator must:

(1) Within 14 days, place a notice in the operating record identifying the appendix II constituents that have been detected and notify the State Director that this notice has been placed in the operating record;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by § 258.51(a), conduct analyses for all constituents in appendix I to this part or in the alternative list approved in accordance with § 258.54(a)(2), and for those constituents in appendix II to this part that are detected in response to paragraph (b) of this section, and record their concentrations in the facility operating record. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events. The Director of an approved State may specify an alternative monitoring frequency during the active life (including closure) and the post-closure period for the constituents referred to in this paragraph. The alternative frequency for appendix I constituents, or the alternative list approved in accordance with § 258.54(a)(2), during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in paragraph (c) of this section;

(3) Establish background concentrations for any constituents detected pursuant to paragraph (b) or (d)(2) of this section; and

(4) Establish ground-water protection standards for all constituents detected pursuant to paragraph (b) or (d) of this section. The ground-water protection standards shall be established in accordance with paragraphs (h) or (i) of this section.

(e) If the concentrations of all appendix II constituents are shown to be at or below background values, using the statistical procedures in § 258.53(g), for two consecutive sampling events, the owner or operator must notify the State Director of this finding and may return to detection monitoring.

(f) If the concentrations of any appendix II constituents are above background values, but all concentrations are below the ground-water protection standard established under paragraphs (h) or (i) of this section, using the statistical procedures in § 258.53(g), the owner or operator must continue assessment monitoring in accordance with this section.

(g) If one or more appendix II constituents are detected at statistically significant levels above the ground-water protection standard established under paragraphs (h) or (i) of this section in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record identifying the appendix II constituents that have exceeded the ground-water protection standard and notify the State Director and all appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(1)(i) Must characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(ii) Must install at least one additional monitoring well at the facility

boundary in the direction of contaminant migration and sample this well in accordance with § 258.55(d)(2);

(iii) Must notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with § 258.55 (g)(1); and

(iv) Must initiate an assessment of corrective measures as required by § 255.56 of this part within 90 days; or

(2) May demonstrate that a source other than a MSWLF unit caused the contamination, or that the SSI increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified ground-water scientist or approved by the Director of an approved State and placed in the operating record. If a successful demonstration is made the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to § 258.55, and may return to detection monitoring if the appendix II constituents are at or below background as specified in § 258.55(e). Until a successful demonstration is made, the owner or operator must comply with § 258.55(g) including initiating an assessment of corrective measures.

(h) The owner or operator must establish a ground-water protection standard for each appendix II constituent detected in the ground-water. The ground-water protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR part 141, the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with § 258.51(a)(1); or

(3) For constituents for which the background level is higher than the MCL identified under paragraph (h)(1) of this section or health based levels identified under § 258.55(i)(1), the background concentration.

(i) The Director of an approved State may establish an alternative ground-water protection standard for constituents for which MCLs have not been established. These ground-water protection standards shall be appropriate health based levels that satisfy the following criteria:

(1) The level is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028, Sept. 24, 1986);

(2) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent;

(3) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) with the $1\times10^{-4}$ to $1\times10^{-6}$ range; and

(4) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this subpart, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

(j) In establishing ground-water protection standards under paragraph (i) of this section, the Director of an approved State may consider the following:

(1) Multiple contaminants in the ground water;

(2) Exposure threats to sensitive environmental receptors; and

(3) Other site-specific exposure or potential exposure to ground water.

### § 258.56 Assessment of corrective measures.

(a) Within 90 days of finding that any of the constituents listed in appendix II to this part have been detected at a statistically significant level exceeding the ground-water protection standards defined under § 258.55 (h) or (i) of this part, the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed within a reasonable period of time.

(b) The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in § 258.55.

(c) The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under § 258.57, addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as State or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(d) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

### § 258.57 Selection of remedy.

(a) Based on the results of the corrective measures assessment conducted under § 258.56, the owner or operator must select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. The owner or operator must notify the State Director, within 14 days of selecting a remedy, a report describing the selected remedy has been placed in the operating record and how it meets the standards in paragraph (b) of this section.

(b) Remedies must:

(1) Be protective of human health and the environment;

(2) Attain the ground-water protection standard as specified pursuant to §§ 258.55 (h) or (i);

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of appendix II constituents into the environment that may pose a threat to human health or the environment; and

(4) Comply with standards for management of wastes as specified in § 258.58(d).

(c) In selecting a remedy that meets the standards of § 258.57(b), the owner or operator shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

(iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;

(iv) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal of containment;

(v) Time until full protection is achieved;

(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

(vii) Long-term reliability of the engineering and institutional controls; and

(viii) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(i) The extent to which containment practices will reduce further releases;

(ii) The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technology;

(ii) Expected operational reliability of the technologies;

(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.

(4) Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

(5) The degree to which community concerns are addressed by a potential remedy(s).

(d) The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d) (1)–(8) of this section. The owner or operator must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with ground-water protection standards established under § 258.55 (g) or (h) and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users;

(iii) Ground-water quantity and quality;

(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituent;

(v) The hydrogeologic characteristic of the facility and surrounding land;

(vi) Ground-water removal and treatment costs; and

(vii) The cost and availability of alternative water supplies.

(7) Practicable capability of the owner or operator.

(8) Other relevant factors.

(e) The Director of an approved State may determine that remediation of a release of an appendix II constituent from a MSWLF unit is not necessary if the owner or operator demonstrates to the satisfaction of the Director of the approved State that:

(1) The ground-water is additionally contaminated by substances that have originated from a source other than a MSWLF unit and those substances are present in concentrations such that cleanup of the release from the MSWLF unit would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent(s) is present in ground water that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the ground-water protection standards established under § 258.55 (h) or (i); or

(3) Remediation of the release(s) is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

(f) A determination by the Director of an approved State pursuant to paragraph (e) of this section shall not affect the authority of the State to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the ground-water, to prevent exposure to the ground-water, or to remediate the ground-water to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

### § 258.58 Implementation of the corrective action program.

(a) Based on the schedule established under § 258.57(d) for initiation and completion of remedial activities the owner/operator must:

(1) Establish and implement a corrective action ground-water monitoring program that:

(i) At a minimum, meet the requirements of an assessment monitoring program under § 258.55;

(ii) Indicate the effectiveness of the corrective action remedy; and

(iii) Demonstrate compliance with ground-water protection standard pursuant to paragraph (e) of this section.

(2) Implement the corrective action remedy selected under § 258.57; and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to § 258.57. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the ground-water that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause hazardous constituents to migrate or be released;

(vi) Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and

(vii) Other situations that may pose threats to human health and the environment.

(b) An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of § 258.57(b) are not being achieved through the remedy selected. In such cases, the owner or operator must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under § 258.58(c).

(c) If the owner or operator determines that compliance with requirements under § 258.57(b) cannot be practically achieved with any currently available methods, the owner or operator must:

(1) Obtain certification of a qualified ground-water scientist or approval by the Director of an approved State that compliance with requirements under § 258.57(b) cannot be practically achieved with any currently available methods;

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(3) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

(i) Technically practicable; and

(ii) Consistent with the overall objective of the remedy.

(4) Notify the State Director within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

(d) All solid wastes that are managed pursuant to a remedy required under § 258.57, or an interim measure required under § 258.58(a)(3), shall be managed in a manner:

(1) That is protective of human health and the environment; and

(2) That complies with applicable RCRA requirements.

(e) Remedies selected pursuant to § 258.57 shall be considered complete when:

(1) The owner or operator complies with the ground-water protection standards established under §§ 258.55(h) or (i) at all points within the plume of contamination that lie beyond the ground-water monitoring well system established under § 258.51(a).

(2) Compliance with the ground-water protection standards established under §§ 258.55(h) or (i) has been achieved by demonstrating that concentrations of appendix II constituents have not exceeded the ground-water protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 258.53(g) and (h). The Director of an approved State may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of appendix II constituents have not exceeded the ground-water protection standard(s) taking into consideration:

(i) Extent and concentration of the release(s);

(ii) Behavior characteristics of the hazardous constituents in the groundwater;

(iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

(iv) Characteristics of the groundwater.

(3) All actions required to complete the remedy have been satisfied.

(f) Upon completion of the remedy, the owner or operator must notify the State Director within 14 days that a certification that the remedy has been completed in compliance with the requirements of § 258.58(e) has been placed in the operating record. The certification must be signed by the owner or operator and by a qualified groundwater scientist or approved by the Director of an approved State.

(g) When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements under paragraph (e) of this section, the owner or operator shall be released from the requirements for financial assurance for corrective action under § 258.73.

**§ 258.59 [Reserved]**

## Subpart F—Closure And Post-Closure Care

### § 258.60 Closure criteria.

(a) Owners or operators of all MSWLF units must install a final cover system that is designed to minimize infiltration and erosion. The final cover system must be designed and constructed to:

(1) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1 \times 10^{-5}$ cm/sec, whichever is less, and

(2) Minimize infiltration through the closed MSWLF by the use of an infiltration layer that contains a minimum 18-inches of earthen material, and

(3) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum 6-inches of earthen material that is capable of sustaining native plant growth.

(b) The Director of an approved State may approve an alternative final cover design that includes:

(1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (a)(1) and (a)(2) of this section, and

(2) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in paragraph (a)(3) of this section.

(c) The owner or operator must prepare a written closure plan that describes the steps necessary to close all MSWLF units at any point during their active life in accordance with the cover design requirements in § 258.60(a) or (b), as applicable. The closure plan, at a minimum, must include the following information:

(1) A description of the final cover, designed in accordance with § 258.60(a) and the methods and procedures to be used to install the cover;

(2) An estimate of the largest area of the MSWLF unit ever requiring a final cover as required under § 258.60(a) at any time during the active life;

(3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility; and

(4) A schedule for completing all activities necessary to satisfy the closure criteria in § 258.60.

(d) The owner or operator must notify the State Director that a closure plan has been prepared and placed in the operating record no later than the effective date of this part, or by the initial receipt of waste, whichever is later.

(e) Prior to beginning closure of each MSWLF unit as specified in § 258.60(f), an owner or operator must notify the State Director that a notice of the intent to close the unit has been placed in the operating record.

(f) The owner or operator must begin closure activities of each MSWLF unit no later than 30 days after the date on which the MSWLF unit receives the known final receipt of wastes or, if the MSWLF unit has remaining capacity and there is a reasonable likelihood that the MSWLF unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Director of an approved State if the owner or operator demonstrates that the MSWLF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environmental from the unclosed MSWLF unit.

(g) The owner or operator of all MSWLF units must complete closure activities of each MSWLF unit in accordance with the closure plan within 180 days following the beginning of closure as specified in paragraph (f) of this section. Extensions of the closure period may be granted by the Director of an approved State if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and he has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed MSWLF unit.

(h) Following closure of each MSWLF unit, the owner or operator must notify the State Director that a certification, signed by an independent registered professional engineer or approved by Director of an approved State, verifying that closure has been completed in accordance with the closure plan, has been placed in the operating record.

(i) (1) Following closure of all MSWLF units, the owner or operator must record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during title search, and notify the State Director that the notation has been recorded and a copy has been placed in the operating record.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

(i) The land has been used as a landfill facility; and

(ii) Its use is restricted under § 258.61(c)(3).

(j) The owner or operator may request permission from the Director of an approved State to remove the notation from the deed if all wastes are removed from the facility.

[56 FR 51016, Oct. 9, 1991; 57 FR 28628, June 26, 1992]

### § 258.61 Post-closure care requirements.

(a) Following closure of each MSWLF unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this section, and consist of at least the following:

(1) Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover;

(2) Maintaining and operating the leachate collection system in accordance with the requirements in § 258.40, if applicable. The Director of an approved State may allow the owner or operator to stop managing leachate if the owner or operator demonstrates

that leachate no longer poses a threat to human health and the environment;

(3) Monitoring the ground water in accordance with the requirements of subpart E of this part and maintaining the ground-water monitoring system, if applicable; and

(4) Maintaining and operating the gas monitoring system in accordance with the requirements of §258.23.

(b) The length of the post-closure care period may be:

(1) Decreased by the Director of an approved State if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Director of an approved State; or

(2) Increased by the Director of an approved State if the Director of an approved State determines that the lengthened period is necessary to protect human health and the environment.

(c) The owner or operator of all MSWLF units must prepare a written post-closure plan that includes, at a minimum, the following information:

(1) A description of the monitoring and maintenance activities required in §258.61(a) for each MSWLF unit, and the frequency at which these activities will be performed;

(2) Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

(3) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this part 258. The Director of an approved State may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

(d) The owner or operator must notify the State Director that a post-closure plan has been prepared and placed in the operating record no later than the effective date of this part, October 9, 1993, or by the initial receipt of waste, whichever is later.

(e) Following completion of the post-closure care period for each MSWLF unit, the owner or operator must notify the State Director that a certification, signed by an independent registered professional engineer or approved by the Director of an approved State, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record.

[56 FR 51016, Oct. 9, 1991; 57 FR 28628, June 26, 1992]

**§§ 258.62—258.69 [Reserved]**

## Subpart G—Financial Assurance Criteria

SOURCE: 56 FR 51029, Oct. 9, 1991, unless otherwise noted.

EFFECTIVE DATE NOTE: At 56 FR 51029, Oct. 9, 1991, subpart G of part 258 was added, effective April 9, 1994. At 58 FR 51547, Oct. 1, 1993, the effective date was delayed until April 9, 1995. At 60 FR 17649, Apr. 7, 1995, the effective date was further delayed until April 9, 1997.

### §258.70 Applicability and effective date.

(a) The requirements of this section apply to owners and operators of all MSWLF units, except owners or operators who are State or Federal government entities whose debts and liabilities are the debts and liabilities of a State or the United States.

(b) The requirements of this section are effective April 9, 1997 except for MSWLF units meeting the conditions of §258.1(f)(1), in which case the effective date is October 9, 1997.

[56 FR 51029, Oct. 9, 1991, as amended at 60 FR 52342, Oct. 6, 1995]

### §258.71 Financial assurance for closure.

(a) The owner or operator must have a detailed written estimate, in current dollars, of the cost of hiring a third party to close the largest area of all MSWLF units ever requiring a final cover as required under §258.60 at any time during the active life in accordance with the closure plan. The owner

or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The cost estimate must equal the cost of closing the largest area of all MSWLF unit ever requiring a final cover at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see § 258.60(c)(2) of this part).

(2) During the active life of the MSWLF unit, the owner or operator must annually adjust the closure cost estimate for inflation.

(3) The owner or operator must increase the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes to the closure plan or MSWLF unit conditions increase the maximum cost of closure at any time during the remaining active life.

(4) The owner or operator may reduce the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the MSWLF unit. The owner or operator must notify the State Director that the justification for the reduction of the closure cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit must establish financial assurance for closure of the MSWLF unit in compliance with § 258.74. The owner or operator must provide continuous coverage for closure until released from financial assurance requirements by demonstrating compliance with § 258.60 (h) and (i).

[56 FR 51029, Oct. 9, 1991; 57 FR 28628, June 26, 1992]

### § 258.72 Financial assurance for post-closure care.

(a) The owner or operator must have a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the MSWLF unit in compliance with the post-closure plan developed under § 258.61 of this part. The post-closure cost estimate used to demonstrate financial assurance in paragraph (b) of this section must account for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure plan over the entire post-closure care period. The owner or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The cost estimate for post-closure care must be based on the most expensive costs of post-closure care during the post-closure care period.

(2) During the active life of the MSWLF unit and during the post-closure care period, the owner or operator must annually adjust the post-closure cost estimate for inflation.

(3) The owner or operator must increase the post-closure care cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the post-closure plan or MSWLF unit conditions increase the maximum costs of post-closure care.

(4) The owner or operator may reduce the post-closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period. The owner or operator must notify the State Director that the justification for the reduction of the post-closure cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit must establish, in a manner in accordance with § 258.74, financial assurance for the costs of post-closure care as required under § 258.61 of this part. The owner or operator must provide continuous coverage for post-closure care until released from financial assurance requirements for post-closure care by demonstrating compliance with § 258.61(e).

### § 258.73 Financial assurance for corrective action.

(a) An owner or operator of a MSWLF unit required to undertake a corrective action program under § 258.58 of this part must have a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the

program required under § 258.58 of this part. The corrective action cost estimate must account for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period. The owner or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action program is completed in accordance with § 258.58(f) of this part.

(2) The owner or operator must increase the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the corrective action program or MSWLF unit conditions increase the maximum costs of corrective action.

(3) The owner or operator may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum remaining costs of corrective action. The owner or operator must notify the State Director that the justification for the reduction of the corrective action cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit required to undertake a corrective action program under § 258.58 of this part must establish, in a manner in accordance with § 258.74, financial assurance for the most recent corrective action program. The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements for corrective action by demonstrating compliance with § 258.58 (f) and (g).

### § 258.74 Allowable mechanisms.

The mechanisms used to demonstrate financial assurance under this section must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Owners and operators must choose from the options specified in paragraphs (a) through (j) of this section.

(a) *Trust Fund.* (1) An owner or operator may satisfy the requirements of this section by establishing a trust fund which conforms to the requirements of this paragraph. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. A copy of the trust agreement must be placed in the facility's operating record.

(2) Payments into the trust fund must be made annually by the owner or operator over the term of the initial permit or over the remaining life of the MSWLF unit, whichever is shorter, in the case of a trust fund for closure or post-closure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and post-closure care, the first payment into the fund must be at least equal to the current cost estimate for closure or post-closure care, except as provided in paragraph (k) of this section, divided by the number of years in the pay-in period as defined in paragraph (a)(2) of this section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = [CE - CV]/Y$$

where CE is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action, except as provided in paragraph (k) of this section, divided by the number of years in the corrective action pay-in period as defined in paragraph (a)(2) of this section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = [RB - CV]/Y$$

where RB is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or before the effective date of the requirements of this section (April 9, 1997, or October 9, 1997 for MSWLF units meeting the conditions of §258.1(f)(1)), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of §258.58.

(6) If the owner or operator establishes a trust fund after having used one or more alternate mechanisms specified in this section, the initial payment into the trust fund must be at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to the specifications of this paragraph and paragraph (a) of this section, as applicable.

(7) The owner or operator, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(8) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance as specified in this section or if he is no longer required to demonstrate financial responsibility in accordance with the requirements of §§258.71(b), 258.72(b), or 258.73(b).

(b) *Surety Bond Guaranteeing Payment or Performance.* (1) An owner or operator may demonstrate financial assurance for closure or post-closure care by obtaining a payment or performance surety bond which conforms to the requirements of this paragraph. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this paragraph. The bond must be effective before the initial receipt of waste or before the effective date of the requirements of this section (April 9, 1997, or October 9, 1997 for MSWLF units meeting the conditions of §258.1(f)(1)), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of §258.58. The owner or operator must notify the State Director that a copy of the bond has been placed in the operating record. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.

(2) The penal sum of the bond must be in an amount at least equal to the current closure, post-closure care or corrective action cost estimate, whichever is applicable, except as provided in §258.74(k).

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of §258.74(a) except the requirements for initial payment and subsequent annual payments specified in §258.74 (a)(2), (3), (4) and (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the surety cancels the

bond, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) The owner or operator may cancel the bond only if alternate financial assurance is substituted as specified in this section or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with §258.71(b), 258.72(b) or 258.73(b).

(c) *Letter of Credit.* (1) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before the effective date of the requirements of this section (April 9, 1997, or October 9, 1997 for MSWLF units meeting the conditions of §258.1(f)(1)), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of §258.58. The owner or operator must notify the State Director that a copy of the letter of credit has been placed in the operating record. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a Federal or State agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: Name, and address of the facility, and the amount of funds assured, must be included with the letter of credit in the operating record.

(3) The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable, except as provided in paragraph (k) of this section. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has cancelled the letter of credit by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the letter of credit is cancelled by the issuing institution, the owner or operator must obtain alternate financial assurance.

(4) The owner or operator may cancel the letter of credit only if alternate financial assurance is substituted as specified in this section or if the owner or operator is released from the requirements of this section in accordance with §258.71(b), §258.72(b) or §258.73(b).

(d) *Insurance.* (1) An owner or operator may demonstrate financial assurance for closure and post-closure care by obtaining insurance which conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or before the effective date of the requirements of this section (April 9, 1997, or October 9, 1997 for MSWLF units meeting the conditions of §258.1(f)(1)), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of §258.58. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. The owner or operator must notify the State Director that a copy of the insurance policy has been placed in the operating record.

(2) The closure or post-closure care insurance policy must guarantee that funds will be available to close the MSWLF unit whenever final closure occurs or to provide post-closure care for the MSWLF unit whenever the post-closure care period begins, whichever is applicable. The policy must also guarantee that once closure or post-closure care begins, the insurer will be responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the current cost estimate for closure or post-closure care, whichever is applicable, except as provided in paragraph (k) of this section. The term *face amount* means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not

change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator, or any other person authorized to conduct closure or post-closure care, may receive reimbursements for closure or post-closure expenditures, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the insurer cancels the policy, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.

(8) The owner or operator may cancel the insurance policy only if alternate financial assurance is substituted as specified in this section or if the owner or operator, is no longer required to demonstrate financial responsibility in accordance with the requirements of § 258.71(b), § 258.72(b) or § 258.73(b).

(e) *Corporate Financial Test.* [Reserved]

(f) *Local Government Financial Test.* [Reserved]

(g) *Corporate Guarantee.* [Reserved]

(h) *Local Government Guarantee.* [Reserved]

(i) *State-Approved Mechanism.* An owner or operator may satisfy the requirements of this section by obtaining any other mechanism that meets the criteria specified in § 258.74(1), and that is approved by the Director of an approved State.

(j) *State Assumption of Responsibility.* If the State Director either assumes legal responsibility for an owner or operator's compliance with the closure, post-closure care and/or corrective action requirements of this part, or assures that the funds will be available from State sources to cover the requirements, the owner or operator will be in compliance with the requirements of this section. Any State assumption of responsibility must meet the criteria specified in § 258.74(l).

(k) *Use of Multiple Financial Mechanisms.* An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per facility. The mechanisms must be as specified in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), (i), and (j) of this section, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling, or grandparent may not be combined if the financial statements of the two firms are consolidated.

(l) The language of the mechanisms listed in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), (i), and (j) of this section

must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator by the effective date of these requirements or prior to the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later that 120 days after the corrective action remedy has been selected in accordance with the requirements of §258.58, until the owner or operator is released from the financial assurance requirements under §§258.71, 258.72 and 258.73.

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under State and Federal law.

[56 FR 51029, Oct. 9, 1991, as amended at 58 FR 51547, Oct. 1, 1993; 60 FR 40105, Aug. 7, 1995; 60 FR 52342, Oct. 6, 1995]

## APPENDIX I TO PART 258—CONSTITUENTS FOR DETECTION MONITORING [1]

| Common name [2] | CAS RN [3] |
|---|---|
| Inorganic Constituents: | |
| (1) Antimony | (Total) |
| (2) Arsenic | (Total) |
| (3) Barium | (Total) |
| (4) Beryllium | (Total) |
| (5) Cadmium | (Total) |
| (6) Chromium | (Total) |
| (7) Cobalt | (Total) |
| (8) Copper | (Total) |
| (9) Lead | (Total) |
| (10) Nickel | (Total) |
| (11) Selenium | (Total) |
| (12) Silver | (Total) |
| (13) Thallium | (Total) |
| (14) Vanadium | (Total) |
| (15) Zinc | (Total) |
| Organic Constituents: | |
| (16) Acetone | 67–64–1 |
| (17) Acrylonitrile | 107–13–1 |
| (18) Benzene | 71–43–2 |
| (19) Bromochloromethane | 74–97–5 |
| (20) Bromodichloromethane | 75–27–4 |
| (21) Bromoform; Tribromomethane | 75–25–2 |
| (22) Carbon disulfide | 75–15–0 |
| (23) Carbon tetrachloride | 56–23–5 |
| (24) Chlorobenzene | 108–90–7 |
| (25) Chloroethane; Ethyl chloride | 75–00–3 |
| (26) Chloroform; Trichloromethane | 67–66–3 |
| (27) Dibromochloromethane; Chlorodibromomethane | 124–48–1 |
| (28) 1,2-Dibromo-3-chloropropane; DBCP | 96–12–8 |
| (29) 1,2-Dibromoethane; Ethylene dibromide; EDB | 106–93–4 |
| (30) o-Dichlorobenzene; 1,2-Dichlorobenzene | 95–50–1 |
| (31) p-Dichlorobenzene; 1,4-Dichlorobenzene | 106–46–7 |
| (32) trans–1,4-Dichloro-2-butene | 110–57–6 |
| (33) 1,1-Dichloroethane; Ethylidene chloride | 75–34–3 |
| (34) 1,2-Dichloroethane; Ethylene dichloride | 107–06–2 |
| (35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride | 75–35–4 |
| (36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene | 156–59–2 |
| (37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene | 156–60–5 |
| (38) 1,2-Dichloropropane; Propylene dichloride | 78–87–5 |
| (39) cis-1,3-Dichloropropene | 10061–01–5 |
| (40) trans-1,3-Dichloropropene | 10061–02–6 |
| (41) Ethylbenzene | 100–41–4 |
| (42) 2-Hexanone; Methyl butyl ketone | 591–78–6 |
| (43) Methyl bromide; Bromomethane | 74–83–9 |
| (44) Methyl chloride; Chloromethane | 74–87–3 |
| (45) Methylene bromide; Dibromomethane | 74–95–3 |
| (46) Methylene chloride; Dichloromethane | 75–09–2 |
| (47) Methyl ethyl ketone; MEK; 2-Butanone | 78–93–3 |
| (48) Methyl iodide; Iodomethane | 74–88–4 |
| (49) 4-Methyl-2-pentanone; Methyl isobutyl ketone | 108–10–1 |
| (50) Styrene | 100–42–5 |
| (51) 1,1,1,2-Tetrachloroethane | 630–20–6 |
| (52) 1,1,2,2-Tetrachloroethane | 79–34–5 |
| (53) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene | 127–18–4 |
| (54) Toluene | 108–88–3 |
| (55) 1,1,1-Trichloroethane; Methylchloroform | 71–55–6 |
| (56) 1,1,2-Trichloroethane | 79–00–5 |
| (57) Trichloroethylene; Trichloroethene | 79–01–6 |
| (58) Trichlorofluoromethane; CFC-11 | 75–69–4 |
| (59) 1,2,3-Trichloropropane | 96–18–4 |
| (60) Vinyl acetate | 108–05–4 |
| (61) Vinyl chloride | 75–01–4 |
| (62) Xylenes | 1330–20–7 |

[1] This list contains 47 volatile organics for which possible analytical procedures provided in EPA Report SW–846 ''Test Methods for Evaluating Solid Waste,'' third edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW–846 provides either Method 6010 or a method from the 7000 series of methods.

[2] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number. Where ''Total'' is entered, all species in the ground water that contain this element are included.

## APPENDIX II TO PART 258—LIST OF HAZARDOUS INORGANIC AND ORGANIC CONSTITUENTS [1]

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (μg/L) [6] |
|---|---|---|---|---|
| Acenaphthene | 83–32–9 | Acenaphthylene, 1,2-dihydro- | 8100 | 200 |
| | | | 8270 | 10 |
| Acenaphthylene | 208–96–8 | Acenaphthylene | 8100 | 200 |
| | | | 8270 | 10 |
| Acetone | 67–64–1 | 2-Propanone | 8260 | 100 |
| Acetonitrile; Methyl cyanide | 75–05–8 | Acetonitrile | 8015 | 100 |
| Acetophenone | 98–86–2 | Ethanone, 1-phenyl- | 8270 | 10 |
| 2-Acetylaminofluorene; 2-AAF | 53–96–3 | Acetamide, N-9H-fluoren-2-yl- | 8270 | 20 |
| Acrolein | 107–02–8 | 2-Propenal | 8030 | 5 |
| | | | 8260 | 100 |
| Acrylonitrile | 107–13–1 | 2-Propenenitrile | 8030 | 5 |
| | | | 8260 | 200 |
| Aldrin | 309–00–2 | 1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1α,4α,4aβ,5α,8α,8aβ)- | 8080 | 0.05 |
| | | | 8270 | 10 |
| Allyl chloride | 107–05–1 | 1-Propene, 3-chloro- | 8010 | 5 |
| | | | 8260 | 10 |
| 4-Aminobiphenyl | 92–67–1 | [1,1[1]-Biphenyl]-4-amine | 8270 | 20 |
| Anthracene | 120–12–7 | Anthracene | 8100 | 200 |
| | | | 8270 | 10 |
| Antimony | (Total) | Antimony | 6010 | 300 |
| | | | 7040 | 2000 |
| | | | 7041 | 30 |
| Arsenic | (Total) | Arsenic | 6010 | 500 |
| | | | 7060 | 10 |
| | | | 7061 | 20 |
| Barium | (Total) | Barium | 6010 | 20 |
| | | | 7080 | 1000 |
| Benzene | 71–43–2 | Benzene | 8020 | 2 |
| | | | 8021 | 0.1 |
| | | | 8260 | 5 |
| Benzo[a]anthracene; Benzanthracene | 56–55–3 | Benz[a]anthracene | 8100 | 200 |
| | | | 8270 | 10 |
| Benzo[b]fluoranthene | 205–99–2 | Benz[e]acephenanthrylene | 8100 | 200 |
| | | | 8270 | 10 |
| Benzo[k]fluoranthene | 207–08–9 | Benzo[k]fluoranthene | 8100 | 200 |
| | | | 8270 | 10 |
| Benzo[ghi]perylene | 191–24–2 | Benzo[ghi]perylene | 8100 | 200 |
| | | | 8270 | 10 |
| Benzo[a]pyrene | 50–32–8 | Benzo[a]pyrene | 8100 | 200 |
| | | | 8270 | 10 |
| Benzyl alcohol | 100–51–6 | Benzenemethanol | 8270 | 20 |
| Beryllium | (Total) | Beryllium | 6010 | 3 |
| | | | 7090 | 50 |
| | | | 7091 | 2 |
| alpha-BHC | 319–84–6 | Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5β,6β)-. | 8080 | 0.05 |
| | | | 8270 | 10 |
| beta-BHC | 319–85–7 | Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2β,3α,4β,5α,6β)-. | 8080 | 0.05 |
| | | | 8270 | 20 |
| delta-BHC | 319–86–8 | Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3α,4β,5α,6β)-. | 8080 | 0.1 |
| | | | 8270 | 20 |
| gamma-BHC; Lindane | 58–89–9 | Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-. | 8080 | 0.05 |
| | | | 8270 | 20 |
| Bis(2-chloroethoxy)methane | 111–91–1 | Ethane, 1,1[1]-[methylenebis(oxy)]bis[2-chloro-. | 8110 | 5 |
| | | | 8270 | 10 |
| Bis(2-chloroethyl) ether; Dichloroethyl ether. | 111-44-4 | Ethane, 1,1[1]-oxybis[2-chloro- | 8110 | 3 |
| | | | 8270 | 10 |
| Bis-(2-chloro-1-methylethyl) ether; 2,2[1]-Dichlorodiisopropyl ether; DCIP, See note 7 | 108–60–1 | Propane, 2,2[1]-oxybis[1-chloro- | 8110 | 10 |
| | | | 8270 | 10 |
| Bis(2-ethylhexyl) phthalate | 117–81–7 | 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester. | 8060 | 20 |
| Bromochloromethane; Chlorobromomethane. | 74–97–5 | Methane, bromochloro- | 8021 | 0.1 |
| | | | 8260 | 5 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (µg/L) [6] |
|---|---|---|---|---|
| Bromodichloromethane; Dibromochloromethane. | 75–27–4 | Methane, bromodichloro- | 8010 | 1 |
| | | | 8021 | 0.2 |
| | | | 8260 | 5 |
| Bromoform; Tribromomethane | 75–25–2 | Methane, tribromo- | 8010 | 2 |
| | | | 8021 | 15 |
| | | | 8260 | 5 |
| 4-Bromophenyl phenyl ether | 101–55–3 | Benzene, 1-bromo-4-phenoxy- | 8110 | 25 |
| | | | 8270 | 10 |
| Butyl benzyl phthalate; Benzyl butyl phthalate. | 85–68–7 | 1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester. | 8060 | 5 |
| | | | 8270 | 10 |
| Cadmium | (Total) | Cadmium | 6010 | 40 |
| | | | 7130 | 50 |
| | | | 7131 | 1 |
| Carbon disulfide | 75–15–0 | Carbon disulfide | 8260 | 100 |
| Carbon tetrachloride | 56–23–5 | Methane, tetrachloro- | 8010 | 1 |
| | | | 8021 | 0.1 |
| | | | 8260 | 10 |
| Chlordane | See Note 8 | 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-. | 8080 | 0.1 |
| | | | 8270 | 50 |
| p-Chloroaniline | 106–47–8 | Benzenamine, 4-chloro- | 8270 | 20 |
| Chlorobenzene | 108–90–7 | Benzene, chloro- | 8010 | 2 |
| | | | 8020 | 2 |
| | | | 8021 | 0.1 |
| | | | 8260 | 5 |
| Chlorobenzilate | 510–15–6 | Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester. | 8270 | 10 |
| p-Chloro-m-cresol; 4-Chloro-3-methylphenol. | 59–50–7 | Phenol, 4-chloro-3-methyl- | 8040 | 5 |
| | | | 8270 | 20 |
| Chloroethane; Ethyl chloride | 75–00–3 | Ethane, chloro- | 8010 | 5 |
| | | | 8021 | 1 |
| | | | 8260 | 10 |
| Chloroform; Trichloromethane | 67–66–3 | Methane, trichloro- | 8010 | 0.5 |
| | | | 8021 | 0.2 |
| | | | 8260 | 5 |
| 2-Chloronaphthalene | 91–58–7 | Naphthalene, 2-chloro- | 8120 | 10 |
| | | | 8270 | 10 |
| 2-Chlorophenol | 95–57–8 | Phenol, 2-chloro- | 8040 | 5 |
| | | | 8270 | 10 |
| 4-Chlorophenyl phenyl ether | 7005–72–3 | Benzene, 1-chloro-4-phenoxy- | 8110 | 40 |
| | | | 8270 | 10 |
| Chloroprene | 126–99–8 | 1,3-Butadiene, 2-chloro- | 8010 | 50 |
| | | | 8260 | 20 |
| Chromium | (Total) | Chromium | 6010 | 70 |
| | | | 7190 | 500 |
| | | | 7191 | 10 |
| Chrysene | 218–01–9 | Chrysene | 8100 | 200 |
| | | | 8270 | 10 |
| Cobalt | (Total) | Cobalt | 6010 | 70 |
| | | | 7200 | 500 |
| | | | 7201 | 10 |
| Copper | (Total) | Copper | 6010 | 60 |
| | | | 7210 | 200 |
| | | | 7211 | 10 |
| m-Cresol; 3-methylphenol | 108–39–4 | Phenol, 3-methyl- | 8270 | 10 |
| o-Cresol; 2-methylphenol | 95–48–7 | Phenol, 2-methyl- | 8270 | 10 |
| p-Cresol; 4-methylphenol | 106–44–5 | Phenol, 4-methyl- | 8270 | 10 |
| Cyanide | 57–12–5 | Cyanide | 9010 | 200 |
| 2,4-D; 2,4-Dichlorophenoxyacetic acid | 94–75–7 | Acetic acid, (2,4-dichlorophenoxy)- | 8150 | 10 |
| 4,4[1]-DDD | 72–54–8 | Benzene 1,1[1]-(2,2-dichloroethylidene)bis[4-chloro-. | 8080 | 0.1 |
| | | | 8270 | 10 |
| 4,4[1]-DDE | 72–55–9 | Benzene, 1,1[1]-(dichloroethyenylidene)bis[4-chloro-. | 8080 | 0.05 |
| | | | 8270 | 10 |
| 4,4[1]-DDT | 50–29–3 | Benzene, 1,1[1]-(2,2,2-trichloroethylidene)bis[4-chloro-. | 8080 | 0.1 |
| | | | 8270 | 10 |
| Diallate | 2303–16–4 | Carbamothioic acid, bis(1-methylethyl)-,S-(2,3-dichloro-2-propenyl) ester. | 8270 | 10 |
| Dibenz[a,h]anthracene | 53–70–3 | Dibenz[a,h]anthracene | 8100 | 200 |
| | | | 8270 | 10 |
| Dibenzofuran | 132–64–9 | Dibenzofuran | 8270 | 10 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (μg/L) [6] |
|---|---|---|---|---|
| Dibromochloromethane; Chlorodibromomethane. | 124–48–1 | Methane, dibromochloro- | 8010 | 1 |
| | | | 8021 | 0.3 |
| | | | 8260 | 5 |
| 1,2-Dibromo-3-chloropropane; DBCP | 96–12–8 | Propane, 1,2-dibrome-3-chloro- | 8011 | 0.1 |
| | | | 8021 | 30 |
| | | | 8260 | 25 |
| 1,2-Dibromoethane; Ethylene dribromide; EDB. | 106–93–4 | Ethane, 1,2-dibromo- | 8011 | 0.1 |
| | | | 8021 | 10 |
| | | | 8260 | 5 |
| Di-n-butyl phthalate | 84–74–2 | 1,2-Benzenedicarboxylic acid, dibutyl ester. | 8060 | 5 |
| | | | 8270 | 10 |
| o-Dichlorobenzene; 1,2-Dichlorobenzene. | 95–50–1 | Benzene, 1,2-dichloro- | 8010 | 2 |
| | | | 8020 | 5 |
| | | | 8021 | 0.5 |
| | | | 8120 | 10 |
| | | | 8260 | 5 |
| | | | 8270 | 10 |
| m-Dichlorobenzene; 1,3-Dichlorobenzene. | 541–73–1 | Benzene, 1,3-Dichloro- | 8010 | 5 |
| | | | 8020 | 5 |
| | | | 8021 | 0.2 |
| | | | 8120 | 10 |
| | | | 8260 | 5 |
| | | | 8270 | 10 |
| p-Dichlorobenzene; 1,4-Dichlorobenzene. | 106–46–7 | Benzene, 1,4-dichloro- | 8010 | 2 |
| | | | 8020 | 5 |
| | | | 8021 | 0.1 |
| | | | 8120 | 15 |
| | | | 8260 | 5 |
| | | | 8270 | 10 |
| 3,3[1]-Dichlorobenzidine | 91–94–1 | [1,1[1]-Biphenyl]-4,4[1]-diamine, 3,3[1]-dichloro-. | 8270 | 20 |
| trans-1,4-Dichloro-2-butene | 110-57-6 | 2-Butene, 1,4-dichloro-, (E)- | 8260 | 100 |
| Dichlorodifluoromethane; CFC 12; | 75–71–8 | Methane, dichlorodifluoro- | 8021 | 0.5 |
| | | | 8260 | 5 |
| 1,1-Dichloroethane; Ethyldidene chloride. | 75–34–3 | Ethane, 1,1-dichloro- | 8010 | 1 |
| | | | 8021 | 0.5 |
| | | | 8260 | 5 |
| 1,2-Dichloroethane; Ethylene dichloride | 107–06–2 | Ethane, 1,1-dichloro- | 8010 | 0.5 |
| | | | 8021 | 0.3 |
| | | | 8260 | 5 |
| 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride. | 75–35–4 | Ethene, 1,1-dichloro- | 8010 | 1 |
| | | | 8021 | 0.5 |
| | | | 8260 | 5 |
| cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene. | 156–59–2 | Ethene, 1,2-dichloro-, (Z)- | 8021 | 0.2 |
| | | | 8260 | 5 |
| trans-1,2-Dichloroethylene trans-1,2-Dichloroethene. | 156–60–5 | Ethene, 1,2-dichloro-, (E)- | 8010 | 1 |
| | | | 8021 | 0.5 |
| | | | 8260 | 5 |
| 2,4-Dichlorophenol | 120–83–2 | Phenol, 2,4-dichloro- | 8040 | 5 |
| | | | 8270 | 10 |
| 2,6-Dichlorophenol | 87–65–0 | Phenol, 2,6-dichloro- | 8270 | 10 |
| 1,2-Dichloropropane; Propylene dichloride. | 78–87–5 | Propane, 1,2-dichloro- | 8010 | 0.5 |
| | | | 8021 | 0.05 |
| | | | 8260 | 5 |
| 1,3-Dichloropropane; Trimethylene dichloride. | 142–28–9 | Propane, 1,3-dichloro- | 8021 | 0.3 |
| | | | 8260 | 5 |
| 2,2-Dichloropropane; Isopropylidene chloride. | 594–20–7 | Propane, 2,2-dichloro- | 8021 | 0.5 |
| | | | 8260 | 15 |
| 1,1-Dichloropropene | 563–58–6 | 1-Propene, 1,1-dichloro- | 8021 | 0.2 |
| | | | 8260 | 5 |
| cis-1,3-Dichloropropene | 10061–01–5 | 1-Propene, 1,3-dichloro-, (Z)- | 8010 | 20 |
| | | | 8260 | 10 |
| trans-1,3-Dichloropropene | 10061–02–6 | 1-Propene, 1,3-dichloro-, (E)- | 8010 | 5 |
| | | | 8260 | 10 |
| Dieldrin | 60–57–1 | 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexa, chloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aα,2β,2aα,3β,6β,6aα,7β,7aα)-. | 8080 | 0.05 |
| | | | 8270 | 10 |
| Diethyl phthalate | 84–66–2 | 1,2-Benzenedicarboxylic acid, diethyl ester. | 8060 | 5 |
| | | | 8270 | 10 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (μg/L) [6] |
|---|---|---|---|---|
| 0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin. | 297–97–2 | Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester. | 8141<br>8270 | 5<br>20 |
| Dimethoate | 60–51–5 | Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl] ester. | 8141<br>8270 | 3<br>20 |
| p-(Dimethylamino)azobenzene | 60–11–7 | Benzenamine, N,N-dimethyl-4-(phenylazo)-. | 8270 | 10 |
| 7,12-Dimethylbenz[a]anthracene | 57–97–6 | Benz[a]anthracene, 7,12-dimethyl- | 8270 | 10 |
| 3,3[1]-Dimethylbenzidine | 119–93–7 | [1,1[1]-Biphenyl]-4,4[1]-diamine, 3,3[1]-dimethyl-. | 8270 | 10 |
| 2,4-Dimethylphenol; m-Xylenol | 105–67–9 | Phenol, 2,4-dimethyl- | 8040<br>8270 | 5<br>10 |
| Dimethyl phthalate | 131–11–3 | 1,2-Benzenedicarboxylic acid, dimethyl ester. | 8060<br>8270 | 5<br>10 |
| m-Dinitrobenzene | 99–65–0 | Benzene, 1,3-dinitro- | 8270 | 20 |
| 4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol. | 534–52–1 | Phenol, 2-methyl-4,6-dinitro | 8040<br>8270 | 150<br>50 |
| 2,4-Dinitrophenol; | 51–28–5 | Phenol, 2,4-dinitro- | 8040<br>8270 | 150<br>50 |
| 2,4-Dinitrotoluene | 121–14–2 | Benzene, 1-methyl-2,4-dinitro- | 8090<br>8270 | 0.2<br>10 |
| 2,6-Dinitrotoluene | 606–20–2 | Benzene, 2-methyl-1,3-dinitro- | 8090<br>8270 | 0.1<br>10 |
| Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol. | 88–85–7 | Phenol, 2-(1-methylpropyl)-4,6-dinitro- | 8150<br>8270 | 1<br>20 |
| Di-n-octyl phthalate | 117–84–0 | 1,2-Benzenedicarboxylic acid, dioctyl ester. | 8060<br>8270 | 30<br>10 |
| Diphenylamine | 122–39–4 | Benzenamine, N-phenyl- | 8270 | 10 |
| Disulfoton | 298–04–4 | Phosphorodithioic acid, 0,0-diethyl S-[2-(ethylthio)ethyl] ester. | 8140<br>8141<br>8270 | 2<br>0.5<br>10 |
| Endosulfan I | 959–98–8 | 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexa- chloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, | 8080<br>8270 | 0.1<br>20 |
| Endosulfan II | 33213–65–9 | 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexa- chloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aα,6β,9β,9aα)-. | 8080<br>8270 | 0.05<br>20 |
| Endosulfan sulfate | 1031–07–8 | 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexa- chloro-1,5,5a,6,9,9a-hexahydro-,3-3-dioxide. | 8080<br>8270 | 0.5<br>10 |
| Endrin | 72–20–8 | 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aα, 2β,2aβ,3α,6α,6aβ,7β,7aα)-. | 8080<br>8270 | 0.1<br>20 |
| Endrin aldehyde | 7421–93–4 | 1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1α,2β,2aβ,4β,4aβ,5β,6aβ,6bβ,7R*)-. | 8080<br>8270 | 0.2<br>10 |
| Ethylbenzene | 100–41–4 | Benzene, ethyl- | 8020<br>8221<br>8260 | 2<br>0.05<br>5 |
| Ethyl methacrylate | 97–63–2 | 2-Propenoic acid, 2-methyl-, ethyl ester | 8015<br>8260<br>8270 | 5<br>10<br>10 |
| Ethyl methanesulfonate | 62–50–0 | Methanesulfonic acid, ethyl ester | 8270 | 20 |
| Famphur | 52–85–7 | Phosphorothioic acid, 0-[4-[(dimethylamino)sulfonyl]phenyl] 0,0-dimethyl ester. | 8270 | 20 |
| Fluoranthene | 206–44–0 | Fluoranthene | 8100<br>8270 | 200<br>10 |
| Fluorene | 86–73–7 | 9H-Fluorene | 8100<br>8270 | 200<br>10 |
| Heptachlor | 76–44–8 | 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-. | 8080<br>8270 | 0.05<br>10 |
| Heptachlor epoxide | 1024–57–3 | 2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aα, 1bβ, 2α, 5α, 5aβ, 6β, 6aα). | 8080<br>8270 | 1<br>10 |
| Hexachlorobenzene | 118–74–1 | Benzene, hexachloro- | 8120<br>8270 | 0.5<br>10 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (µg/L) [6] |
|---|---|---|---|---|
| Hexachlorobutadiene | 87–68–3 | 1,3-Butadiene, 1,1,2,3,4,4-hexachloro- | 8021 | 0.5 |
| | | | 8120 | 5 |
| | | | 8260 | 10 |
| | | | 8270 | 10 |
| Hexachlorocyclopentadiene | 77–47–4 | 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-. | 8120 | 5 |
| | | | 8270 | 10 |
| Hexachloroethane | 67–72–1 | Ethane, hexachloro- | 8120 | 0.5 |
| | | | 8260 | 10 |
| | | | 8270 | 10 |
| Hexachloropropene | 1888–71–7 | 1-Propene, 1,1,2,3,3,3-hexachloro- | 8270 | 10 |
| 2-Hexanone; Methyl butyl ketone | 591–78–6 | 2-Hexanone | 8260 | 50 |
| Indeno(1,2,3-cd)pyrene | 193–39–5 | Indeno(1,2,3-cd)pyrene | 8100 | 200 |
| | | | 8270 | 10 |
| Isobutyl alcohol | 78–83–1 | 1-Propanol, 2-methyl- | 8015 | 50 |
| | | | 8240 | 100 |
| Isodrin | 465–73–6 | 1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a hexahydro-(1α,4α,4aβ,5β,8β,8aβ)-. | 8270 | 20 |
| | | | 8260 | 10 |
| Isophorone | 78–59–1 | 2-Cyclohexen-1-one, 3,5,5-trimethyl- | 8090 | 60 |
| | | | 8270 | 10 |
| Isosafrole | 120–58–1 | 1,3-Benzodioxole, 5-(1-propenyl)- | 8270 | 10 |
| Kepone | 143–50–0 | 1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-. | 8270 | 20 |
| Lead | (Total) | Lead | 6010 | 400 |
| | | | 7420 | 1000 |
| | | | 7421 | 10 |
| Mercury | (Total) | Mercury | 7470 | 2 |
| Methacrylonitrile | 126–98–7 | 2-Propenenitrile, 2-methyl- | 8015 | 5 |
| | | | 8260 | 100 |
| Methapyrilene | 91–80–5 | 1,2-Ethanediamine, N.N-dimethyl-N¹-2-pyridinyl-N1/2-thienylmethyl)-. | 8270 | 100 |
| Methoxychlor | 72–43–5 | Benzene,1,1¹-(2,2,2,trichloroethylidene)bis[4-methoxy-. | 8080 | 2 |
| | | | 8270 | 10 |
| Methyl bromide; Bromomethane | 74–83–9 | Methane, bromo- | 8010 | 20 |
| | | | 8021 | 10 |
| Methyl chloride; Chloromethane | 74–87–3 | Methane, chloro- | 8010 | 1 |
| | | | 8021 | 0.3 |
| 3-Methylcholanthrene | 56–49–5 | Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-. | 8270 | 10 |
| Methyl ethyl ketone; MEK; 2-Butanone | 78–93–3 | 2-Butanone | 8015 | 10 |
| | | | 8260 | 100 |
| Methyl iodide; Iodomethane | 74–88–4 | Methane, iodo- | 8010 | 40 |
| | | | 8260 | 10 |
| Methyl methacrylate | 80–62–6 | 2-Propenoic acid, 2-methyl-, methyl ester. | 8015 | 2 |
| | | | 8260 | 30 |
| Methyl methanesulfonate | 66–27–3 | Methanesulfonic acid, methyl ester | 8270 | 10 |
| 2-Methylnaphthalene | 91–57–6 | Naphthalene, 2-methyl- | 8270 | 10 |
| Methyl parathion; Parathion methyl | 298–00–0 | Phosphorothioic acid, 0,0-dimethyl | 8140 | 0.5 |
| | | | 8141 | 1 |
| | | | 8270 | 10 |
| 4-Methyl-2-pentanone; Methyl isobutyl ketone. | 108–10–1 | 2-Pentanone, 4-methyl- | 8015 | 5 |
| | | | 8260 | 100 |
| Methylene bromide; Dibromomethane | 74–95–3 | Methane, dibromo- | 8010 | 15 |
| | | | 8021 | 20 |
| | | | 8260 | 10 |
| Methylene chloride; Dichloromethane | 75–09–2 | Methane, dichloro- | 8010 | 5 |
| | | | 8021 | 0.2 |
| | | | 8260 | 10 |
| Naphthalene | 91–20–3 | Naphthalene | 8021 | 0.5 |
| | | | 8100 | 200 |
| | | | 8260 | 5 |
| | | | 8270 | 10 |
| 1,4-Naphthoquinone | 130–15–4 | 1,4-Naphthalenedione | 8270 | 10 |
| 1-Naphthylamine | 134–32–7 | 1-Naphthalenamine | 8270 | 10 |
| 2-Naphthylamine | 91–59–8 | 2-Naphthalenamine | 8270 | 10 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (µg/L) [6] |
|---|---|---|---|---|
| Nickel | (Total) | Nickel | 6010 | 150 |
| | | | 7520 | 400 |
| o-Nitroaniline; 2-Nitroaniline | 88–74–4 | Benzenamine, 2-nitro- | 8270 | 50 |
| m-Nitroaniline; 3-Nitroanile | 99–09–2 | Benzenamine, 3-nitro- | 8270 | 50 |
| p-Nitroaniline; 4-Nitroaniline | 100–01–6 | Benzenamine, 4-nitro | 8270 | 20 |
| Nitrobenzene | 98–95–3 | Benzene, nitro- | 8090 | 40 |
| | | | 8270 | 10 |
| o-Nitrophenol; 2-Nitrophenol | 88–75–5 | Phenol, 2-nitro- | 8040 | 5 |
| | | | 8270 | 10 |
| p-Nitrophenol; 4-Nitrophenol | 100–02–7 | Phenol, 4-nitro- | 8040 | 10 |
| | | | 8270 | 50 |
| N-Nitrosodi-n-butylamine | 924–16–3 | 1-Butanamine, N-butyl-N-nitroso- | 8270 | 10 |
| N-Nitrosodiethylamine | 55–18–5 | Ethanamine, N-ethyl-N-nitroso- | 8270 | 20 |
| N-Nitrosodimethylamine | 62–75–9 | Methanamine, N-methyl-N-nitroso- | 8070 | 2 |
| N-Nitrosodiphenylamine | 86–30–6 | Benzenamine, N-nitroso-N-phenyl- | 8070 | 5 |
| N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine. | 621–64–7 | 1-Propanamine, N-nitroso-N-propyl- | 8070 | 10 |
| N-Nitrosomethylethalamine | 10595–95–6 | Ethanamine, N-methyl-N-nitroso- | 8270 | 10 |
| N-Nitrosopiperidine | 100–75–4 | Piperidine, 1-nitroso- | 8270 | 20 |
| N-Nitrosopyrrolidine | 930–55–2 | Pyrrolidine, 1-nitroso- | 8270 | 40 |
| 5-Nitro-o-toluidine | 99–55–8 | Benzenamine, 2-methyl-5-nitro- | 8270 | 10 |
| Parathion | 56–38–2 | Phosphorothioic acid, 0,0-diethyl 0-(4-nitrophenyl) ester. | 8141 | 0.5 |
| | | | 8270 | 10 |
| Pentachlorobenzene | 608–93–5 | Benzene, pentachloro- | 8270 | 10 |
| Pentachloronitrobenzene | 82–68–8 | Benzene, pentachloronitro- | 8270 | 20 |
| Pentachlorophenol | 87–86–5 | Phenol, pentachloro- | 8040 | 5 |
| | | | 8270 | 50 |
| Phenacetin | 62–44–2 | Acetamide, N-(4-ethoxyphenl) | 8270 | 20 |
| Phenanthrene | 85–01–8 | Phenanthrene | 8100 | 200 |
| | | | 8270 | 10 |
| Phenol | 108–95–2 | Phenol | 8040 | 1 |
| p-Phenylenediamine | 106–50–3 | 1,4-Benzenediamine | 8270 | 10 |
| Phorate | 298–02–2 | Phosphorodithioic acid, 0,0-diethyl S-[(ethylthio)methyl] ester. | 8140 | 2 |
| | | | 8141 | 0.5 |
| | | | 8270 | 10 |
| Polychlorinated biphenyls; PCBs; Aroclors. | See Note 9 | 1,1'-Biphenyl, chloro derivatives | 8080 | 50 |
| | | | 8270 | 200 |
| Pronamide | 23950–58–5 | Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-. | 8270 | 10 |
| Propionitrile; Ethyl cyanide | 107–12–0 | Propanenitrile | 8015 | 60 |
| | | | 8260 | 150 |
| Pyrene | 129–00–0 | Pyrene | 8100 | 200 |
| | | | 8270 | 10 |
| Safrole | 94–59–7 | 1,3-Benzodioxole, 5-(2-propenyl)- | 8270 | 10 |
| Selenium | (Total) | Selenium | 6010 | 750 |
| | | | 7740 | 20 |
| | | | 7741 | 20 |
| Silver | (Total) | Silver | 6010 | 70 |
| | | | 7760 | 100 |
| | | | 7761 | 10 |
| Silvex; 2,4,5-TP | 93–72–1 | Propanoic acid, 2-(2,4,5-trichlorophenoxy)-. | 8150 | 2 |
| Styrene | 100–42–5 | Benzene, ethenyl- | 8020 | 1 |
| | | | 8021 | 0.1 |
| | | | 8260 | 10 |
| Sulfide | 18496–25–8 | Sulfide | 9030 | 4000 |
| 2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid. | 93–76–5 | Acetic acid, (2,4,5-trichlorophenoxy)- | 8150 | 2 |
| 1,2,4,5-Tetrachlorobenzene | 95–94–3 | Benzene, 1,2,4,5-tetrachloro- | 8270 | 10 |
| 1,1,1,2-Tetrachloroethane | 630–20–6 | Ethane, 1,1,1,2-tetrachloro- | 8010 | 5 |
| | | | 8021 | 0.05 |
| | | | 8260 | 5 |
| 1,1,2,2-Tetrachloroethane | 79–34–5 | Ethane, 1,1,2,2-tetrachloro- | 8010 | 0.5 |
| | | | 8021 | 0.1 |
| | | | 8260 | 5 |
| Tetrachloroethylene; Tetrachloroethene; Perchloroethylene. | 127–18–4 | Ethene, tetrachloro- | 8010 | 0.5 |
| | | | 8021 | 0.5 |
| | | | 8260 | 5 |
| 2,3,4,6-Tetrachlorophenol | 58–90–2 | Phenol, 2,3,4,6-tetrachloro- | 8270 | 10 |

| Common Name [2] | CAS RN [3] | Chemical abstracts service index name [4] | Suggested methods [5] | PQL (µg/L) [6] |
|---|---|---|---|---|
| Thallium | (Total) | Thallium | 6010 | 400 |
| | | | 7840 | 1000 |
| | | | 7841 | 10 |
| Tin | (Total) | Tin | 6010 | 40 |
| Toluene | 108–88–3 | Benzene, methyl- | 8020 | 2 |
| | | | 8021 | 0.1 |
| | | | 8260 | 5 |
| o-Toluidine | 95–53–4 | Benzenamine, 2-methyl- | 8270 | 10 |
| Toxaphene | See Note 10 | Toxaphene | 8080 | 2 |
| 1,2,4-Trichlorobenzene | 120–82–1 | Benzene, 1,2,4-trichloro- | 8021 | 0.3 |
| | | | 8120 | 0.5 |
| | | | 8260 | 10 |
| | | | 8270 | 10 |
| 1,1,1-Trichloroethane; Methylchloroform | 71–55–6 | Ethane, 1,1,1-trichloro- | 8010 | 0.3 |
| | | | 8021 | 0.3 |
| | | | 8260 | 5 |
| 1,1,2-Trichloroethane | 79–00–5 | Ethane, 1,1,2-trichloro- | 8010 | 0.2 |
| | | | 8260 | 5 |
| Trichloroethylene; Trichloroethene | 79–01–6 | Ethene, trichloro- | 8010 | 1 |
| | | | 8021 | 0.2 |
| | | | 8260 | 5 |
| Trichlorofluoromethane; CFC–11 | 75–69–4 | Methane, trichlorofluoro- | 8010 | 10 |
| | | | 8021 | 0.3 |
| | | | 8260 | 5 |
| 2,4,5-Trichlorophenol | 95–95–4 | Phenol, 2,4,5-trichloro- | 8270 | 10 |
| 2,4,6-Trichlorophenol | 88–06–2 | Phenol, 2,4,6-trichloro- | 8040 | 5 |
| | | | 8270 | 10 |
| 1,2,3-Trichloropropane | 96–18–4 | Propane, 1,2,3-trichloro- | 8010 | 10 |
| | | | 8021 | 5 |
| | | | 8260 | 15 |
| 0,0,0-Triethyl phosphorothioate | 126–68–1 | Phosphorothioic acid, 0,0,0-triethylester | 8270 | 10 |
| sym-Trinitrobenzene | 99–35–4 | Benzene, 1,3,5-trinitro- | 8270 | 10 |
| Vanadium | (Total) | Vanadium | 6010 | 80 |
| | | | 7910 | 2000 |
| | | | 7911 | 40 |
| Vinyl acetate | 108–05–4 | Acetic acid, ethenyl ester | 8260 | 50 |
| Vinyl chloride; Chloroethene | 75–01–4 | Ethene, chloro- | 8010 | 2 |
| | | | 8021 | 0.4 |
| | | | 8260 | 10 |
| Xylene (total) | See Note 11 | Benzene, dimethyl- | 8020 | 5 |
| | | | 8021 | 0.2 |
| | | | 8260 | 5 |
| Zinc | (Total) | Zinc | 6010 | 20 |
| | | | 7950 | 50 |
| | | | 7951 | 0.5 |

Notes

[1] The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.

[2] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number. Where ''Total'' is entered, all species in the ground water that contain this element are included.

[4] CAS index are those used in the 9th Collective Index.

[5] Suggested Methods refer to analytical procedure numbers used in EPA Report SW–846 ''Test Methods for Evaluating Solid Waste'', third edition, November 1986, as revised, December 1987. Analytical details can be found in SW–846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW–846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

[6] Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in ground waters that can be realiably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[7] This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2′-oxybis[2-chloro- (CAS RN 39638–32–9).

[8] Chlordane: This entry includes alpha-chlordane (CAS RN 5103–71–9), beta-chlordane (CAS RN 5103–74–2), gamma-chlordane (CAS RN 5566–34–7), and constituents of chlordane (CAS RN 57–74–9 and CAS RN 12789–03–6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 µg/L by method 8270.

[9] Polychlorinated biphenyls (CAS RN 1336–36–3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674–11–2), Aroclor 1221 (CAS RN 11104–28–2), Aroclor 1232 (CAS RN 11141–16–5), Aroclor 1242 (CAS RN 53469–21–9), Aroclor 1248 (CAS RN 12672–29–6), Aroclor 1254 (CAS RN 11097–69–1), and Aroclor 1260 (CAS RN 11096–82–5). The PQL shown is an average value for PCB congeners.

[10] Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001–35–2), i.e., chlorinated camphene.

[11] Xylene (total): This entry includes o-xylene (CAS RN 96–47–6), m-xylene (CAS RN 108–38–3), p-xylene (CAS RN 106–42–3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330–20–7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 μg/L by method 8020 or 8260.

## PART 259 [Reserved]